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CHROMATE CONTENT BIAS AS A FUNCTION OF PARTICLE SIZE IN AIRCRAFT PRIMER PAINT OVERSPRAY

THESIS

David B. Novy, Captain, USAF

AFIT/GEE/ENV/01M-12

DEPARTMENT OF THE AIR FORCE AIR UNIVERSITY AIR FORCE INSTITUTE OF TECHNOLOGY

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AFIT/GEE/ENV/01M-12

CHROMATE CONTENT BIAS AS A FUNCTION OF PARTICLE SIZE IN AIRCRAFT PRIMER PAINT OVERSPRAY

THESIS

Presented to the Faculty

Department of Systems and Engineering Management

Graduate School of Engineering and Management

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Air University

Air Education and Training Command

In Partial Fulfillment of the Requirements for the

Degree of Master of Science in Engineering and Environmental Management

David B. Novy, B.S.

Captain, USAF

March 2001

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David B. Novy

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Abstract

Spray painting operations using chromate-containing primer paints produce particles which may expose workers to strontium chromate. Chromate contains hexavalent chromium (Cr(VI)) which is a confirmed human carcinogen. It is suspected that the smaller particles contain disproportionately less Cr(VI) than larger particles. In order to determine if a bias in chromate content exists, paint particles were collected and separated based on particle size and the Cr(VI) concentration was determined.

Aviation primer paint from the DeSoto and Deft companies was sprayed in a booth and seven-stage cascade impactors were used to separate particles. The particles were grouped into fourteen distinct bins based on size within an overall range of 0.7 to 34.1 μ m mass median aerodynamic diameter. The total mass of dry paint collected in each bin was quantified and the paint was analyzed for Cr(VI) mass. The Cr(VI) mass (μ g) was divided by the mass of dry paint (μ g) collected to determine the percentage of Cr(VI) per mass of dry paint.

Smaller particles contained significantly less Cr(VI) per mass of dry paint than larger particles. Paint sample particles smaller than 3 μ m contained 1.2 % and 1.8 % Cr(VI) per mass of dry paint for DeSoto and Deft paints, respectively, which represents less than 30% of the Cr(VI) mass expected.

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CHROMATE CONTENT BIAS AS A FUNCTION OF PARTICLE SIZE IN AIRCRAFT PRIMER PAINT OVERSPRAY

I. Introduction

Background

The United States Air Force's aluminum-skinned aircraft are protected against corrosion by a coat of chromate-based primer paint. The primer hinders the formation of aluminum oxide and provides a more suitable surface for application of the polyurethane top coat.

Primer paint used on USAF aircraft is regulated by four specifications: MIL-P-23377G, MIL-P-85582B, and MIL-P-87112 (military specifications), and TT-P-2760A (a federal specification). MIL-P-23377G is the most heavily used chromate-based primer used in the Air Force today because of its superior adhesion and protection capabilities as well as chemical and solvent resistance. The protection capability of MIL-P-23377G primer is primarily due to the additive strontium chromate (SrCrO₄) which is a suspect human carcinogen (Klaassen, 1996:1042). To date, there is no suitable alternative to chromate-containing primer paints capable of providing a similar level of aircraft corrosion protection.

Aircraft are typically painted with High Velocity, Low Pressure (HVLP) spray equipment which applies the primer with an application efficiency rate of approximately 50-80% under laboratory conditions (Carlton and Flynn, 1997). Some fraction of the remainder of the paint will remain suspended as overspray composed of chromate-

containing primer paint particles which present an inhalation risk to workers. Because inhaled particles distribute throughout the lungs based on size, with the smallest particles reaching the lung's deepest regions, the specific chromate content of various particle sizes is of interest to more accurately predict the distribution of chromate in the lungs.

Aside from a better understanding of the deposition of chromate in the lungs, particle size is also an important factor in air filter efficiency. Exhaust air from a paint facility is filtered before the air is released into the atmosphere. However, some fraction of the particles will pass through the filters posing a hazardous air emission from the painting facility. Smaller particles tend to pass through these filters more readily than larger particles. The particles that pass through the filters contribute to air, soil, and water contamination. The degree of chromate contamination is dependent upon not only filter efficiency, but also the mass of chromate in these smaller particles that tend to pass through these filters.

A study by Fox indicated a bias in chromium content based on paint particle size. The study found that particles smaller than 2.5 μ m contain disproportionately less chromate (percentage by mass) compared to those particles greater than 2.5 μ m (Fox, 2000). The implications of Fox's study indicate previous assumptions may overestimate potential worker exposure to SrCrO₄ and overestimate the total quantity of chromate which may bypass a filtration system.

Thesis Objective

The objective of this study is to 1) quantify the chromium concentration within each particle size range collected, and 2) identify differences in chromium concentration bias among particle sizes between two manufacturers of chromate-containing primer

paint. This study will focus on MIL-P-23377G primers manufactured by Deft and DeSoto because these two manufacturers supply the greatest quantities of Air Force primer paints.

II. Literature review

Background

Chromate-containing aerosols are generated in the aerospace industry by the paint application process. Paints are typically applied using spraying equipment to evenly distribute a primer coating on the metal surface of the component or aircraft. HVLP spray equipment delivering paint at 1-10 pounds per square inch (psi) at the nozzle is the current standard of application for USAF painting operations. Under laboratory conditions, the HVLP application method transfers paint with a transfer efficiency of approximately 50-80%. The paint particles which do not adhere to the application surface, referred to as overspray, are carried off by a ventilating airstream typically flowing at a rate of 100 feet per minute (ACGIH, 1995). Depending on the size of the facility and the scope or type of painting required, multiple operators can be involved with a single painting task. The overspray generated by the painting process results in a cloud of chromate-containing particles and is the primary concern for worker exposure to chromate during painting operations.

Health Effects of Strontium Chromate

Strontium chromate (SrCrO₄) is the form of chromate most often used in aerospace painting applications due to the corrosion resistance it provides, however, there is sufficient evidence in experimental animals that conclude $SrCrO_4$ is a potent carcinogen (IARC, 1990). Empirical evidence suggests the carcinogenicity of specific chromate salts is linked to the valence state of the chromium ion, with hexavalent chromium (Cr(VI)) presenting the greatest health concern (Jones, 1990; Levy *et al.*, 1986). In a study conducted by Levy et al. (1986), an intrabronchial pellet implantation system was used to observe tumor formation associated with twenty-one chromate salts. In Levy's study, only strontium chromate and zinc chromate, both Cr(VI)-containing salts, yielded statistically significant incidences of bronchial carcinomas. Although this study did not replicate the inhalation method of exposure to chromium-containing aerosols, the evidence for carcinogenicity is substantial (Levy, 1986). Hundreds of additional studies exist indicating the carcinogenicity of Cr(VI) compounds including epidemiological studies of workers in the chrome production, manufacturing, pigment production, ferrochromium production, stainless steel, electroplating, chrome plating, and leather tanning industries (IARC, 1990:85-97).

A threshold concept for carcinogenic potential exists based on the body's physiological capacity to reduce the valence state of Cr(VI) compounds to the relatively non-toxic Cr(III) state before DNA damage occurs (Jones, 1990). Studies have shown the valence state reduction occurs in the bodily fluids (including the epithelial fluid lining the respiratory tract) and at the cellular level (in the cytosol, mitochondria, and microsomes) (Korallus, et al., 1984; DeFlora, 1988; Petrilli and DeFlora, 1988). Levels of ascorbic acid and glutathione in the bronchioles and alveoli further limit the amount of Cr(VI) available for cellular absorption as they both have the potential to reduce Cr(VI) to Cr(III) before absorption can take place (Lewalter and Korallus, 1988).

Johansson et al. (1986) showed that for rabbits exposed to an air concentration of 0.6 and 0.9 mg/m³ of tri- and hexavalent, respectively, for four to six weeks, six hours per day, five days per week, the only morphological changes observed were limited to the pulmonary alveolar macrophages (PAMs), not lung tissue. The PAMs, which are mobile

in the alveolar region, provide a secondary defense against exposure to Cr(VI) atoms by engulfing and reducing Cr(VI) to its relatively non-toxic trivalent state via enzymatic action (Lewalter and Korallus, 1988).

Chromate Exposure Limits

Both the Occupational Safety and Health Administration (OSHA) and the American Conference of Governmental Industrial Hygienists (ACGIH) have established occupational exposure limits for exposure to SrCrO₄. OSHA is a government agency and the only agency that regulates occupational exposures for industry with legal enforcement. The ACGIH is a private organization which focuses on worker safety. The OSHA permissible exposure level (PEL) is a ceiling of 0.1 mg CrO₃/m³. A ceiling limit is the air concentration that cannot be exceeded during any part of the workday. ACGIH limits exposure to a time-weighted average (TWA) over an 8-hour workday to 0.0005 mg Cr(VI)/m³.

Effect of Particle Size on Particle Deposition

The aerodynamic diameter of an inhaled particle plays a major role in where the particle may deposit within the lungs. Inhaled air follows a tortuous path through the nasopharyngeal region and branching airways in the lung. Each time the air changes direction the momentum of each particle tends to keep the particle on its pre-established trajectory. The tendency of larger particles to maintain trajectories increases the likelihood of impaction on airway surfaces. Particles larger than 10 μ m generally deposit in the upper respiratory tract while those between 2 μ m and 10 μ m will generally deposit in the trachea and the bronchioles. Particles in the range of 0.01 to 2.5 μ m have a high probability of depositing in the pulmonary region (Godish, 1991: 156) (See figure 2.1).

Therefore, inhaled particle size affects both the location of deposition in the lungs and the quantity of chromate delivered.

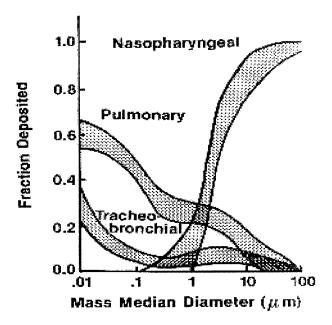


Figure 1. Fractional Deposition of Particles (Task Group on Lung Dynamics, 1966)

Clearance Mechanisms in the Respiratory System

Particle clearance in the respiratory system is performed by two distinct mechanisms: the mucociliary system and the alveolar macrophages (West, 1998: 117-121). Clearance time is dependent upon the region of particle deposition and the means of clearance within that region, but the mucociliary system is considered to be the more efficient clearance mechanism of the two (Klaassen, 1996: 449).

The mucus layer covering the nasopharyngeal and tracheobronchial regions is moved upward by the beating of the underlying cilia. This mucociliary escalator moves deposited particles out of the respiratory system to the esophagus where they are swallowed and passed through the gastrointestinal system (Klaassen, 1996: 448-449). Mucociliary clearance is quite efficient in healthy individuals and is typically accomplished within 24- to 48-hours for particles deposited in the lower airways of healthy individuals (Lippmann and Schlesinger, 1984:262).

Particles deposited in the lower, or pulmonary region, of the lungs may be cleared in one of several ways (Klaassen, 1996: 449):

1. Particles may be directly trapped on the fluid layer of the airways and cleared upward by the mucociliary escalator.

2. Particles may be phagocytized by macrophages and cleared via the mucociliary escalator, or removed via lymphatic drainage.

3. Material may dissolve from the surface of particles and be removed via the bloodstream or lymph system.

4. Small particles may directly penetrate epithelial membranes.

Minutes after particles are inhaled, they can be found in alveolar macrophages.

Many alveolar macrophages are ultimately transported to the mucociliary escalator, however, particles may be sequestered in the lung for long periods of time within alveolar macrophages which migrate into the interstitial tissue instead of being cleared via mucociliary escalation (Klaassen, 1996:449; and West, 1998: 120).

Mechanical Filtration

In the filtration of aerosols, three basic mechanisms are thought to be responsible for the capture of particles in air streams by fibers of filter media. First, direct interception of the particle by the filter media assumes a particle follows a streamline perfectly and because of the particle's size or the proximity of the streamline to the filter fiber, the particle collides with the filter media. Second, convective-diffusion allows for the influence of Brownian motion on very small particles; as the particle approaches the filter fiber, the random motion of the particle can cause it to travel close enough to the filter media to be captured. The third mechanism responsible for capture is inertial-impaction, the same phenomena responsible for the majority of particle deposition in the lungs as it is primarily of importance in filtration of particles from air streams. (Clark, 1996: 410-411)

Paint Application

The spray application process most common in the aerospace industry is compressed air atomization, such as the HVLP spray gun. The spray gun discharges the primer paint through a fluid nozzle and a column of air emitted from the air nozzle surrounds this liquid stream. Shear forces developed along the surface of contact between the two fluids cause the paint liquid to disintegrate into droplets (Bayvel and Orzechowski, 1993). The most important factors affecting the distribution of particle sizes leaving the nozzle are air pressure at the nozzle, liquid paint viscosity, and the ratio of air to liquid mass flow rates (Carlton and Flynn, 1997).

The focus of this study is not to generate a model of particle size distribution within a worker's breathing zone because many factors such as worker orientation, airframe shape, and environmental characteristics will substantially vary worker breathing zone exposures (Carlton and Flynn, 1997; Lefebvre, 1989). Rather, this research quantifies the fraction of Cr(VI) in relation to particle size, independent of worker-specific parameters. The mass of Cr(VI) in particles of various sizes can then be translated into a worker's exposure model based on other particle size distribution sampling.

Paint Overspray Collection

Physical separation of paint particles is necessary to characterize the Cr(VI) concentration based on particle size. Various methods are available to collect particles based on size, including inertial classification, gravitational sedimentation, centrifugation, and thermal precipitation. Inertial classifiers are the most prevalent means of particle collection and include cascade impactors, virtual impactors, and cyclones. Cascade impactors are the primary instruments of choice for collecting and differentiating particles by their aerodynamic characteristics. (Marple et al., 1993: 203-206)

Paint Sample Preparation

Paint particle samples must be transformed into the appropriate physical state for spectroscopic analysis; this is performed by acid digestion. The National Institute for Occupational Safety and Health (NIOSH) method 7082 recommends microwave digestion of paint chips for analysis of lead content and similar methods were indicated for analysis of additional metals, including chromium. Microwave digestion of samples is preferred over hot plate digestion because of factors including chemical hazards, sample loss, and digestion time (Lachas et al., 1998:180).

Cr(VI) Content Bias

In his 2000 report, Fox found a bias in Cr(VI) content (µg Cr/mg paint) based on aerodynamic diameter. His study was limited to seven samples using paint from a single manufacturer, but his data showed that some bias exists between particle size and Cr(VI) content: a statistically significant reduction in Cr(VI) content as a percentage of the total mass of paint solids collected for particles smaller than 2.5 µm contained $18 \frac{\mu gofCr}{mgof drypaint}$ compared with particles larger than 2.5µm which contained

 $70 \frac{\mu gofCr}{mgof \, drypaint}.$

Fox's results provide evidence that the concentration and mass of Cr(VI) deposited in the pulmonary region of the lungs may be significantly less than what is deposited in the upper regions. This also indicates an air filter's removal efficiency for chromate may be higher because larger particles containing a disproportionately larger fraction of Cr(VI) are removed more easily than smaller particles, indicating filter particle efficiency therefore underestimates Cr(VI) filtration efficiency.

Research Focus

This research will determine if different paint mixtures will result in different Cr(VI) biases in particles. The research was designed to allow an exploration of possible manufacturer-specific biases. The paint used will be MIL-P-23377G primer paint, a high solids, solvent-based epoxy paint, manufactured by both the Deft and DeSoto Corporations. This study focuses on identifying the possibility of a bias in Cr(VI) concentration in particles over a wide range of particle sizes (0.7 to 34 μ m).

III. Methodology

Overview

The purpose of this study is to collect paint particles of various sizes and quantify the Cr(VI) content per total dry weight of paint collected. Paint samples were sprayed in the Air Force Research Laboratory (AFRL) paint booth at Wright-Patterson Air Force Base, Ohio using a DeVilbiss High Volume-Low Pressure (HVLP) spray gun. The paint particles generated by the spraying were collected and separated based on particle size using four seven-stage cascade impactors manufactured by In-Tox products. After collecting the various sized paint particles, the samples were prepared then analyzed using an Avanta atomic absorption spectrometer with both graphite furnace and flame analysis methods.

Painting Operation

The AFRL paint booth used for this sampling effort is 6.75'x6'x5' and has an average air flow of 151 feet per minute. Temperature and humidity were maintained at 22 degrees Celsius (+/- 2 degrees) and 63% (+/- 3%) for the duration of sampling.

A DeVilbiss HVLP spray gun, product number JGHV-531, was fitted with a DeVilbiss number 46MP air cap. A two-quart, pressure fed paint supply cup was attached to the spray gun and supplied with moisture- and oil-free air per manufacturer's specifications. Paint base and activator were mixed per manufacturers' specification and allowed a 30 minute induction time before the paint was sprayed for sampling. Paint was sprayed from the HVLP gun onto a fixed target with eight inches separating the HVLP nozzle and target. Overspray from the application of primer paint onto the target was

drawn across the booth towards the sampling equipment. In order to collect more particles, a cardboard enclosure was placed around the impactors to reduce the velocity of the particles and increase the collection efficiency. The HVLP spray gun and target were held in fixed positions while the HVLP trigger was held open for the duration of each sampling run. Sample run times ranged from 30 to 52 minutes and 1200 mL of paint was sprayed per run. Viscosity of the paint is expected to account for the range of sampling times. Each can of paint provided enough paint for three sampling sessions and it was noted that the last samples sprayed from a can required more time to spray than the first. It is possibly some of the solvents in the paint had evaporated over the period of time from when the can was initially opened to when the last sample was sprayed and therefore increased the paint viscosity. No affect on the analytical results was noted that could be attributed to the increased sampling time. Pressure settings were held constant within manufacturer recommendations for delivery line air pressure (50 psi), paint cup pressure (15 psi), and nozzle pressure (1.5 psi).

Cascade Impactors

Four seven-stage cascade impactors, were used to collect primer paint overspray samples and aerodynamically separate paint particles into discrete size ranges (See Figure 2). The median particle size collected by each stage is termed the stage Effective Cut-off Diameter (ECD). The median particle size collected on each stage was calculated as follows (equation 1):

Where:	0.495	= Stokes number for round jets (Hinds, 1982:118)
	D_i^3	= Jet Diameter in cm
	n	= number of jets on the stage
	π	= 3.1416
	Q	= Volumetric flow in $cm^3/sec = 10 lpm = 166.67 cm^3/sec$
	ρ _q	= partial density for aerodynamic equivalent = 1 g/cm^3
	μ	= Viscosity of air at 22° C = 1.83 x 10^{-4} g/cm-sec

(1)

ECD = $(.495 \ (\mu)(D_j^3)(n)(\pi)/(Q)(\rho_q))^{\frac{1}{2}}$

Collection and separation of the paint particles is achieved by drawing the particles through a series of stages containing jets and impacting the particles onto a surface placed immediately downstream of the jets. Each stage of the impactor contains jets of progressively smaller diameters and a smaller space between the jets and the collecting plate. Stages are placed in series within the impactor so that the particles entering the largest jets pass through progressively smaller jets before leaving the impactor. This configuration facilitates the collection of successively smaller particles on each subsequent impactor stage. (In-Tox Products, 2000)

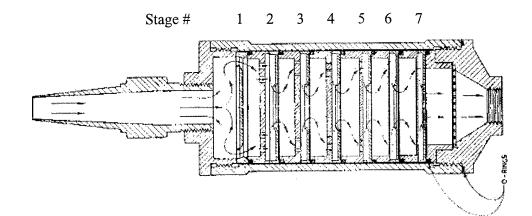


Figure 2. Detail of a Cascade Impactor Showing Air Flow (PCSC, 2000)

Of the four cascade impactors, two were designed to collect particles in a lower range than the other two. The flow rates of each impactor were adjusted to maximize the total particle size range collected. The lower range impactors were held at 18 liters per minute $(0.7 \ \mu m \le ECD \le 11.4 \ \mu m)$ while the upper range impactors were held at 8 liters per minute (2.7 $\ \mu m \le ECD \le 34 \ \mu m)$). The ECD calculations using equation 1 for the low and high range impactors are shown in Tables 1 and 2.

Stage #	1	2	3	4	5	6	7
Number of Jets per Stage	1	2	3	4	6	9	12
Average Jet Diameter (cm)	1.1125	0.0635	0.4003	0.2636	0.1679	0.1082	0.07315
ECD 50% (um) (18 LPM)	11.4	7.0	4.3	2.6	1.6	1.0	0.7

Table 1. Lower Particle Size Range Impactor at 18 lpm

 Table 2. Upper Particle Size Range Impactor at 8 lpm

Stage #	1	2	3	4	5	6	7
Number of Jets per Stage	1	1	2	2	3	4	6
Average Jet Diameter (cm)	1.7582	1.3208	0.7884	0.5636	0.3914	0.2692	0.1788
ECD 50% (um) (8 LPM)	34.1	22.2	14.5	9.5	6.2	4.1	2.7

Cartridge Filter

A cartridge filter was placed in the sampling array with the impactors. The cartridge filter collects all airborne particle sizes and was used to collect a broad range of particle sizes as a single sample. The paint overspray sample collected from the cartridge filter is used to estimate the average Cr(VI) content of overspray. This data along with

the Material Safety Data Sheets helped to establish the overall Cr(VI) content of the paint.

Sample Substrates

Millipore digestible cellulose ester filters (CEFs) were used on the cascade impactor stages to collect overspray particles. CEFs were ideal for this effort because after paint is collected on the CEF, the CEF can be digested along with the collected paint particles to reduce losses from transferring the paint to a digestion vessel. All samples were weighed three times each, both before and after sampling, and those weights were averaged to determine the pre- and post-weights. Weighing of the substrates was performed in a sealed glovebag which contained Drierite and an Ohaus model AP240 microbalance (Accuracy 0.01 mg). The dry weight of paint collected on each CEF was determined by subtracting the pre-weight from the post-weight. Throughout the process, whenever CEFs were not loaded in the impactors they were stored with Drierite, either in glass desiccation bottles or in a sealed glovebag, for a minimum of 12 hours before weighing to eliminate moisture or unevaporated paint solvents.

Sampling Train

Two Gast pumps were used to draw air through the cascade impactors and cartridge filter. The precise airflow was regulated through an individual flowmeter for each impactor and vacuum pressure was monitored with a magnehelic. Airflow at each impactor was calibrated before and after each sampling run using a Sensidyne Flow Calibrator. A five-gallon receiver tank was placed in-line to minimize fluctuation in flow rate caused by the vacuum pump. One vacuum pump was used to pull air through the lower particle range impactors at a flow rate of 18 liters per minute (lpm) with the second

pump drawing air through the upper particle range impactors at a rate of 8 lpm and the cartridge filter at 10 lpm (See Figure 3). The pumps and flowmeters were placed outside of the paint booth during the painting operation to eliminate any explosion hazard (See Figure 4).

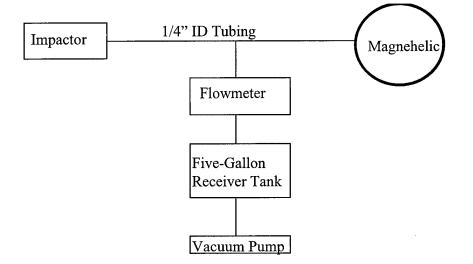


Figure 3. Impactor-Flowmeter-Pump Design

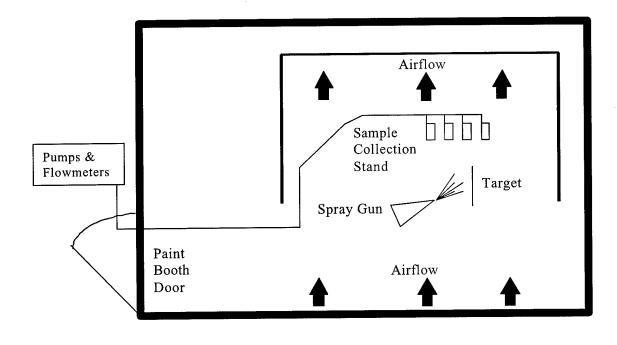


Figure 4. Paint Booth Layout (Not to Scale)

Sample Analysis

After the mass of collected paint particles on each CEF was determined, the paint Figure X samples and CEFs were digested in an OI Analytical Microwave. Each CEF with collected paint was loaded into a separate Teflon microwave digestion vessel and 6.0 mL of reagent-grade, 70% nitric acid was added to the vessel. Microwave vessels were capped, loaded into the microwave carousel, and processed following a modified NIOSH method Number 7082 for digestion of paint chips. The temperature was held at a minimum of 175°C for a minimum of 20 minutes. Pressure within the digestion vessel ranged from 100 to 180 psi, exceeding the NIOSH minimum of 75 psi. This aggressive digestion method is necessary to breakdown the paint matrix. After microwave digestion, samples were allowed to cool to room temperature and ambient pressure before opening the vessels, typically taking three to four hours. The cooled digestion vessels were opened in a fume hood and triple rinsed with approximately 20 to 25 mL of 7% nitric acid into 30 mL High Density Polyethylene (HDPE) storage bottles. Each storage bottle was pre-weighed on the Ohaus AP240 microbalance and post-weighed after the sample was added to the bottle. The final dilution volume of each sample was determined by subtracting the weight of the paint sample and storage bottle from the total post weight and dividing the remaining mass by the density of the solution. This allowed a more precise determination of the dilution volume, recognizing that 6 mL of the dilution volume was 70% nitric acid and the remainder was 7% nitric acid. All HDPE bottles were pre- and post-weighed three times each and the average of those weights were used to calculate sample volume (See equation 2).

SampleVolume
$$(mL) = \frac{(m_1 - m_0) - m_{filter} - (V_D \cdot \rho_{70\%})}{\rho_{7\%}} + V_D$$
 (2)

 $\begin{array}{lll} \mbox{Where:} & m_0 &= \mbox{Pre-weight of HDPE sample bottle (g)} \\ & m_l &= \mbox{Post-weight of HDPE sample bottle (g)} \\ & m_{filter} &= \mbox{Mass of CEF and paint sample (g)} \\ & \rho_{70\%} &= \mbox{Density 70\% nitric acid (g/mL)} \\ & \rho_{7\%} &= \mbox{Density of 7\% nitric acid (g/mL)} \\ & V_D &= \mbox{Volume of 70\% nitric acid used for digestion (mL)} \end{array}$

The actual analysis of samples for chromium concentration was performed on a GBC Avanta Atomic Absorption Spectrometer (AAS). Samples expected to contain chromium concentrations in the range of 0 to 999 parts per billion (ppb) were analyzed using the graphite furnace method while those expected to contain chromium

concentrations from 1 to 45 parts per million (ppm) were analyzed using the flame method. No samples analyzed contained more than 45 ppm chromium.

The graphite furnace method was calibrated using the GBC auto-mix feature to establish a 5-point calibration curve (7.5, 20.0, 40, 60, 75 ppb) from a certified 75 ppb standard. The R² value for all calibration curves are greater than 0.98. A certified check standard of 25 ppb was used to recalibrate the AAS at approximately every 15 samples. Three replicate measurements were made for each sample following the procedure established in Table 3. The AAS's auto-dilution feature automatically diluted samples that were above the highest point of the calibration curve. Samples that were above the highest point of the calibration curve were auto-diluted 80% by the AAS with deionized water and re-analyzed. Auto-dilution was performed a maximum of two times. Samples with concentrations that were too high for the graphite furnace method with auto-dilution were analyzed with the flame method.

Step	Final Temp. (C)	Ramp Time (s)	Hold Time (s)	Gas Type
Step 1 Inject Sample				
Step 2	80°	5	10	Inert
Step 3	130°	30	10	Inert
Step 4	1400°	15	15	Inert
Step 5 Read Concentration	2500°	1.4	1.6	None
Step 6	2700°	0.5	1.5	Inert

 Table 3. AAS Graphite Furnace Parameters

The flame method was established using an air-acetylene flame. The acetylene flow was held at 2.00 liters per minute and compressed air flow was held at 10.0 liters per minute. For the flame method, a calibration curve was established with four standards (1, 5, 10, and 15 ppm) from a certified 1000 ppm source of Cr(VI). The R² value for all

calibration curves are above 0.98. A check sample of 10 ppm was run at the end of the each series of 10 to 15 samples to check for a shift in the calibration curve during the run. Samples that were measured at absorbance values outside the calibration curve were manually diluted as needed.

Mass of Cr(VI) per Dry Paint

Chromium concentrations from the AAS were used to determine the Cr(VI) content of the samples per dry weight of paint. The chromium concentrations determined by the AAS for each CEF sample was multiplied by the dilution volume and then divided by the mass of dry paint collected on each CEF to determine the Cr(VI) content per mass of paint (equation 3).

$$Cr(VI) \ permass of \ dry \ paint = \frac{C_{AAS} \cdot V_D}{m_{c,1} - m_{c,0}}$$
(3)

Where: CAAS	= AAS reported concentration (μ g/L)
V_D	= Sample volume (L) from equation 2
$m_{c,0}$	= CEF pre-weight (μg)
$m_{c,1}$	= CEF post-weight (μ g)

IV. Results

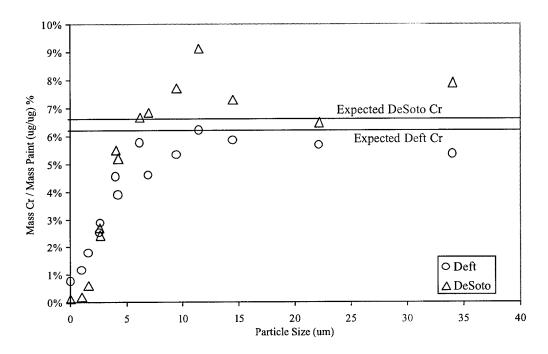
Cr(VI) Content per Mass of Paint

Table 4 displays the results of the Cr(VI) analysis. The particle sizes collected are shown in the first column, the average percent mass of Cr(VI) per mass of dry paint, (mass $Cr(\mu g) / mass dry paint(\mu g)$) x 100%, the number of samples for each particle size (n), and the standard deviation (Std. Dev.) of the percent of Cr(VI) for both manufacturers' paints are listed..

	ĺ	Deft			DeSot	.0
Particle Size (ECD) (um)	n	Mean % (Cr/paint)	Std. Dev.	n	Mean % (Cr/paint)	Std. Dev.
0.7	17	0.8 %	0.35	17	0.1 %	0.09
1.0	16	1.2 %	0.38	18	0.2 %	0.07
1.6	15	1.8 %	0.5	18	0.6 %	0.19
2.6	18	2.5 %	0.76	18	2.7 %	0.87
2.7	18	2.9 %	0.18	17	2.4 %	1.06
4.1	18	4.5 %	0.83	17	5.5 %	1.45
4.3	17	3.9 %	0.07	18	5.2 %	1.14
6.2	18	5.8 %	0.83	17	6.7 %	1.06
7.0	17	4.6 %	0.32	16	6.8 %	0.91
9.5	17	5.3 %	0.55	17	7.7 %	0.09
11.4	17	6.2 %	0.19	18	9.1 %	0.57
14.5	17	5.8 %	0.45	18	7.3 %	1.18
22.2	18	5.7 %	0.38	17	6.5 %	1.28
34.1	18	5.3 %	0.69	16	7.9 %	1.19
Cartridge Filter	8	6.7 %	0.70	6	9.4 %	0.86

Table 4. Average Cr(VI) Content Per Mass of Dry Paint

In Figure 5 below, the mean percent Cr(VI) content versus particle size are plotted for both manufacturers. Both manufacturers' paints exhibit the same phenomena: smaller particles tend to have less Cr(VI) per mass of dry paint than larger particles. A decrease in Cr(VI) content per mass of dry paint for particles less than 10 μ m MMAD is noticed with samples obtained from both manufacturers, however, the decrease is more pronounced in the DeSoto paint samples, which had a higher original Cr(VI) content.



Comparison of Mass of Cr per Mass of Paint by Manufacturer

Figure 5. Comparison of Mass Cr per Mass Dry Paint by Manufacturer

Figures 6 and 7 below show a more descriptive breakout of sample data from each manufacturer including individual data points:

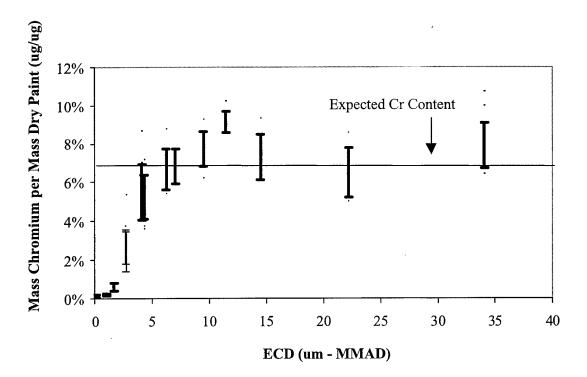


Figure 6. DeSoto Cr(VI) by Mass of Dry Paint (Bars represent one standard deviation above and below mean)

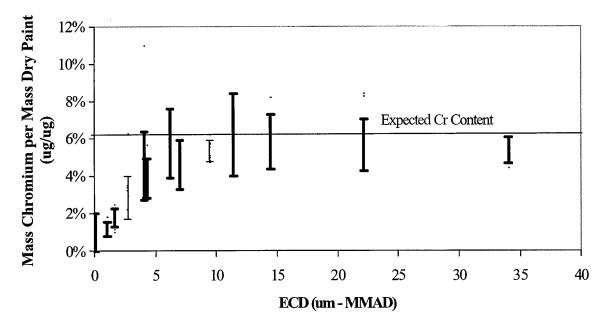


Figure 7. Deft Cr(VI) by Mass of Dry Paint (Bars represent one standard deviation above and below mean)

Particle Size-dependent Cr(VI) Content Bias

To determine if the chrome contents by particle size are statistically different, a Tukey-Kramer all pairs analysis was applied to the data (Figures 8 and 9). The analysis reveals that Deft particles 2.71 μ m (MMAD) and smaller had a statistically significant reduction in Cr(VI) content by mass when compared to particles sized 4.08 μ m and larger. The DeSoto paint samples indicated particles collected which were smaller than 4.08 micrometers (MMAD) had a statistically significant reduction in Cr(VI) content by mass when compared to collected particles sized 4.08 micrometers (MMAD) had a statistically significant reduction in Cr(VI) content by mass when compared to collected particles sized 4.08 micrometers (MMAD) and higher. In the following figures, underlined series indicate particle Cr(VI) contents per mass of dry paint are not significantly different; dotted lines indicate a continuation of the series that excludes a specific particle size (i.e., Cr(VI) content of particle sizes with MMADs of 1.04, 1.64, 2.64, 2.71, and 4.28 μ m are not significantly different, excluding 4.08 μ m).

	Deft MMAD Particle Size (um)												
0.067	1.04	1.64	2.64	2.71	4.08	4.28	6.19	6.98	9.45	11.42	14.46	22.17	34.05
_													
				-									
		_											
				-									

Figure 8. Deft Tukey-Kramer All pairs Analysis (alpha = 0.05)

DeSoto MMAD Particle Size (um)													
0.067	1.04	1.64	2.64	2.71	4.08	4.28	6.19	6.98	9.45	11.42	14.46	22.17	34.05
		-											
				-				•••••		•••••	•••••		
										•••••			
						· · · · · · · · -			• • • • • • • • •	•••••			

Figure 9. DeSoto Tukey-Kramer All pairs Analysis (alpha = 0.05)

Manufacturer-specfic Bias

These data indicate smaller particle sizes contain far less Cr(VI) per mass of dry paint than the expected concentration. Both paints exhibit a similar phenomena with a statistically significant difference in the mean Cr(VI) content per mass of dry paint for particles equal to and smaller than 4.28 µm. However, as these figures indicate, the Cr(VI) concentration decreases progressively with decreasing particle size.

Common Particle Size-dependent Bias

Both the Deft and DeSoto paints displayed a bias in Cr(VI) content attributable to the size of the particle collected. Cr(VI) concentrations in particles tended to increase with particle size as exhibited below in Table 5.

	% of Maximum (Observed Sample
	Cr(VI) Co	ncentration
Particle Size (um)	Deft	DeSoto
0.7	12 %	1 %
1.0	19 %	2 %
1.6	29 %	7 %
2.6	41 %	29 %
2.7	46 %	27 %
4.1	73 %	60 %
4.3	63 %	57 %
6.2	93 %	73 %
7.0	74 %	75 %
9.5	86 %	84 %
11.4	100 %	100 %
14.5	94 %	80 %
22.2	91 %	71 %
34.1	86 %	86 %

Table 5. Cr(VI) Content as a Percentage of the Maximum Observed Concentration

In Table 5, the Cr(VI) concentrations attributable to particle size were compared with the highest observed average concentration of Cr(VI).

V. Discussion

Implications of Cr(VI) Content Bias

The location of particle deposition in the lungs is of particular interest because of the different particle clearance mechanisms within the different regions of the lungs. In general, aerosol particles less than a MMAD of 2.5 μ m are capable of reaching the alveolar sacs and larger particles tend to deposit in the upper respiratory airways. The upper regions of the lung clear particulate matter via the mucociliary escalator faster than the alveolar region of the lungs. Because smaller particles that are more likely to reach the deepest regions of the lung contain less chromate than larger particles, the majority of chromate from primer overspray may be cleared from the lungs rapidly, thus reducing the residence time of Cr(VI) in the lungs. It is possible that particles caught in the upper regions of the alveoli because of their rapid removal via the mucociliary escalator. The data presented here indicate those particles with the greatest potential for reaching the alveolar region of the lungs than 30 percent of the chromate than would be predicted based on the average chromate content of the paint.

In addition to the human health implications, the bias in chromate content may also have implications for quantities of chromate released from industrial paint booths into the atmosphere. Filter efficiency ratings vary with different particle sizes. Efficiency generally increases with larger particle sizes while smaller particles are more likely to escape filtration. Therefore, Cr(VI) concentrations released from filtering

mechanisms would likely be less than expected because as shown here smaller particles contain less chromium per mass of cry paint.

Possible Source of Bias

The physical processes of atomization are likely responsible for the Cr(VI) bias observed in this research. In general, the breakup of a drop in a flowing fluid is controlled by the air pressure acting on the droplets, surface tension of the atomized fluid, and the viscous forces within the droplet (Lefebvre, 1989). The forces acting on the particles deform it in one of three ways. First, the drop may be flattened to form an oblate ellipsoid (flattened ball shape). Subsequent deformation of the particle depends on the magnitude of internal forces which ultimately result in the particle stretching and disintegrating into smaller particles. The second possible deformation results in an elongated, cylindrical thread or ligament which breaks up into smaller particles. The third possible deformation is due to local deformations on the particle's surface creating bulges and protuberances which eventually detach from the parent particle to form smaller particles (Hinze, 1955). Depending on the pressure acting upon the particle surface, these three types of deformations may occur as a shear mechanism where the surface layer of liquid is torn off, rapidly transforming the parent particle into a series of small drops from the surface of the particle. The other mechanism is a chaotic, bursting process where disintegration proceeds so rapidly that shearing is almost unnoticeable (Bayvel and Orzechowski, 1993:71-73).

These modes of primer paint particle disintegration may explain the lower quantities of chromate in smaller particles. Assuming the paint particles form around a core nucleus of homogeneously distributed chromate, if the parent particle of paint were

to remain intact, the chromate content by mass of the parent particle would likely approximate the average chromate content of the paint. If resultant smaller particles were formed by a chaotic burst in which the drop disintegration proceeds so rapidly that little shearing of the surface layer of the parent particle occurs, it could be assumed the resultant smaller particles would approximate the average chromate content of the parent drop. However, if a shearing mechanism is responsible for the disintegration of the parent particle, the smaller particles formed from the surface layer would be composed primarily of binders and solvents resulting in a lower chromate content by mass (Figure 10).

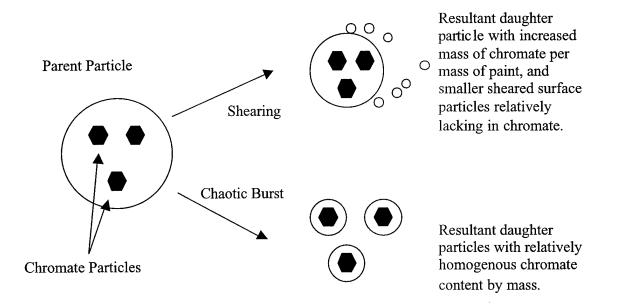


Figure 10. Methods of Particle Disintegration

If the smaller particles formed from the surface layer of a parent particle are relatively lacking in SrCrO₄, they would have a smaller mass per unit volume than particles rich in SrCrO₄ because the density of chromate is higher than the other paint constituents (see Table 6). The particles lacking $SrCrO_4$ would behave similarly to particles with smaller MMADs since the MMAD is a function of density. As a result, more paint binders and solvents would be collected than $SrCrO_4$ in the range of the smaller particles and possible account for the limited $SrCrO_4$ found in smaller particles.

Consitituent	Density (g/mL)
Methyl Ethyl Ketone	0.8
Methyl Isobutyl Ketone	0.8
Methyl Amyl Ketone	0.8
Isopropanol	0.8
Toluene	0.9
Cyclohexanone	0.9
Xylene	0.9
Epoxy Resin	1.2
Crystalline Silica Quartz	2.7
Talc	2.8
Titanium Dioxide	3.9
Strontium Chromate	3.9

Table 6. Density of Primer Paint Constituents

Future Study

Epoxy polyamide primer paints, like those tested here, are not the only chromated primer paints in use by the Air Force. Chromated water-based, polyurethane, and polysulfide paints are permitted by specification and should be tested for a similar chromate content bias as well. The different paint matrix constituents of water-based and polysulfide paints may not exhibit the same properties as the epoxy polyamide paints.

The focus of this and other studies has been the application of the primer paint. However, another population at risk for exposure to chromate is that of the sanders involved with refinishing aircraft. According to an epidemiological study by Alexander, et al, aerospace industry sanders are twice as likely to develop lung cancer as painters (Alexander, et al, 1996). Given that the material of concern is the same for both populations, one could assume the particle size of the toxicant workers are exposed to would account for different levels of exposure between the populations. Paint allowed to cure on the aircraft skin would likely produce paint particles in a range of sizes when sanded, but smaller particles would be less likely to exhibit a bias in chromate content. A characterization of the chromate content of sanded paint particles using cascade impactors could provide valuable insight into worker exposure within the sander population.

Appendix A: Raw Data Tables

The attached tables provide the raw data obtained in this research effort.

<u>Column Heading:</u> Sample Run	Explanation: "R1", "R2", etc. indicate the sample run number
Impactor	Indicates the type of impactor collecting the samples (i.e. high or low range)
Particle Size (MMAD - µm)	MMAD Particle size in micrometers
Mass of Dry Paint Collected (µg)	(Post-weight of CEF) - (Pre-weight of CEF)
AAS Furnace Cr Concentration (ppb)	AAS furnace method indicated chromium concentration; Cr concentration in the diluted analyte
AAS Flame Cr Concentration (ppm)	AAS flame method indicated chromium concentration; Cr concentration in the diluted analyte
Mass Cr(VI) Collected (µg)	Mass of Cr collected in the paint sample, determined by multiplying the AAS Cr Concentration by the dilution volume.
Mass Cr/Paint (%)	Mass of Cr (µg) per mass of dry paint (µg)

Comula	I	Dortiolo Sizo	Mass of Dry Paint	AAS Furnace Cr	AAS Flame Cr	Mass Cr(VI)	Mass
Sample Run	Impactor	Particle Size (MMAD - um)	Collected (ug)	Concentration (ug/L)	Concentration (ug/L)	Collected (ug)	Cr/Paint (%)
<u> </u>			Collected (ug)	Concentration (ug/L/	Concentration (ug/L)	Ouncolou (ug)	
R1		34.1	10687	0	34580	1144	10.7%
R1	0-	22.2	2183	0	4726	165	7.5%
R1	1 u u u	14.5	2503	0	5756	201	8.0%
R1	High Range Impactor #1	9.5		S	Sample Lost		
R1	- <u>1</u> ,	6.2	2353	0	4997	173	7.4%
R1	코토	4.1		S	Sample Lost		
R1		2.7		S	Sample Lost		
R1		34.1	8393	0	18860	642	7.7%
R1	High Range Impactor #2	22.2	2153	0	4668	163	7.6%
R1	o au	14.5	1490	0	3421	116	7.8%
R1	ас д	9.5	3500	0	8838	301	8.6%
R1	l age	6.2	2230	0	4923	167	7.5%
R1	T =	4.1	933	0	1544	53	
R1		2.7	437	324	0	11	2.5%
R1		11.4	44973	0	125610	4214	9.4%
R1	₽g₩	7.0	4613	0	11886	404	8.7%
R1	to a	4.3	1990	0 734	3864 609	134 25	6.7% 3.6%
R1	N N N	2.6 1.6	683 383	734 99	0	20 3	3.6% 0.9%
R1 R1	Low Range Impactor #1	1.0	383 253	99 17	0		0.9%
R1	-	0.7	103	9	0	0	0.2%
		11.4	44880	0	125286	4254	9.5%
R1		7.0	4233	0	11222	371	8.8%
R1	Low Range Impactor #2	4.3	2087	0	4585	149	7.2%
R1	cta	2.6	577	780	0	27	4.6%
R1	≥ ¢	1.6	380	94	0	3	0.8%
R1	15	1.0	240	19	0	1	0.3%
R1		0.7	113	10	0	0	0.3%
R1	Cart	ridge Filter		8	Sample Lost		
				AAO E			Mana
Sample	Impactor	Particle Size	Mass of Dry Paint	AAS Furnace Cr	AAS Flame Cr	Mass Cr(VI)	Mass Cr/Paint (%)
Sample Run	Impactor	Particle Size (MMAD - um)	Mass of Dry Paint Collected (ug)	AAS Furnace Cr Concentration (ug/L)	AAS Flame Cr Concentration (ug/L)	Mass Cr(VI) Collected (ug)	Mass Cr/Paint (%)
	Impactor						
Run	Impactor	(MMAD - um)					
Run	<u> </u>		Collected (ug)	Concentration (ug/L)	Concentration (ug/L)	Collected (ug)	Cr/Paint (%)
Run	<u> </u>	(MMAD - um) 34.1	Collected (ug) 6077	Concentration (ug/L)	Concentration (ug/L) 16961	Collected (ug) 605 72 126	Cr/Paint (%)
Run R2 R2	<u> </u>	(MMAD - um) 34.1 22.2	Collected (ug) 6077 910	Concentration (ug/L) 0 0 0 0 0	Concentration (ug/L) 16961 2141 3764 7227	Collected (ug) 605 72	Cr/Paint (%) 10.0% 7.9%
Run R2 R2 R2 R2 R2 R2 R2	<u> </u>	(MMAD - um) 34.1 22.2 14.5 9.5 6.2	Collected (ug) 6077 910 1393 2723	Concentration (ug/L) 0 0 0 0 0 5	Concentration (ug/L) 16961 2141 3764 7227 Sample Lost	Collected (ug) 605 72 126 249	Cr/Paint (%) 10.0% 7.9% 9.0% 9.1%
Run R2 R2 R2 R2 R2 R2 R2 R2 R2 R2	High Range Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1	Collected (ug) 6077 910 1393 2723 607	Concentration (ug/L) 0 0 0 0 0 5 1449	Concentration (ug/L) 16961 2141 3764 7227 Sample Lost 0	Collected (ug) 605 72 126 249 48	Cr/Paint (%) 10.0% 7.9% 9.0% 9.1% 8.0%
Run R2 R2 R2 R2 R2 R2 R2 R2 R2 R2	<u> </u>	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7	Collected (ug) 6077 910 1393 2723 607 263	Concentration (ug/L) 0 0 0 0 0 5 1449 285	Concentration (ug/L) 16961 2141 3764 7227 Sample Lost 0 0	Collected (ug) 605 72 126 249 48 10	Cr/Paint (%) 10.0% 7.9% 9.0% 9.1% 8.0% 3.7%
Run R2 R2 R2 R2 R2 R2 R2 R2 R2 R2 R2	High Range Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1	Collected (ug) 6077 910 1393 2723 607 263 6727	Concentration (ug/L) 0 0 0 0 0 5 1449 285 0	Concentration (ug/L) 16961 2141 3764 7227 Sample Lost 0 0 13804	Collected (ug) 605 72 126 249 48 10 477	Cr/Paint (%) 10.0% 9.0% 9.1% 8.0% 3.7% 7.1%
Run R2 R2 R2 R2 R2 R2 R2 R2 R2 R2 R2 R2 R2	High Range Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2	Collected (ug) 6077 910 1393 2723 607 263 6727 943	Concentration (ug/L) 0 0 0 0 0 5 1449 285 0 0 0 0	Concentration (ug/L) 16961 2141 3764 7227 Sample Lost 0 0 13804 2350	Collected (ug) 605 72 126 249 48 10 477 81	Cr/Paint (%) 10.0% 7.9% 9.0% 9.1% 8.0% 3.7% 7.1% 8.6%
Run R2 R2 R2 R2 R2 R2 R2 R2 R2 R2 R2 R2 R2	High Range Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5	Collected (ug) 6077 910 1393 2723 607 263 6727 943 1190	Concentration (ug/L) 0 0 0 0 0 5 1449 285 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 16961 2141 3764 7227 Sample Lost 0 0 13804 2350 3266	Collected (ug) 605 72 126 249 48 10 477 81 111	Cr/Paint (%) 10.0% 7.9% 9.0% 9.1% 8.0% 3.7% 7.1% 8.6% 9.3%
Run R2 R2 R2 R2 R2 R2 R2 R2 R2 R2 R2 R2 R2	High Range Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5	Collected (ug) 6077 910 1393 2723 607 263 607 263 6727 943 1190 2400	Concentration (ug/L) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 16961 2141 3764 7227 Sample Lost 0 0 0 13804 2350 3266 6532	Collected (ug) 605 72 126 249 48 10 477 81 111 111	Cr/Paint (%) 10.0% 7.9% 9.0% 9.1% 8.0% 3.7% 8.6% 9.3% 9.3%
Run R2 R2 R2 R2 R2 R2 R2 R2 R2 R2 R2 R2 R2	High Range Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2	Collected (ug) 6077 910 1393 2723 607 263 6727 943 1190 2400 1477	Concentration (ug/L) 0 0 0 0 0 5 1449 285 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 16961 2141 3764 7227 Sample Lost 0 0 13804 2350 3266	Collected (ug) 605 72 126 249 48 10 477 81 111	Cr/Paint (%) 10.0% 7.9% 9.0% 9.1% 8.0% 3.7% 7.1% 8.6% 9.3% 9.3% 9.3% 8.8%
Run R2 R2 R2 R2 R2 R2 R2 R2 R2 R2 R2 R2 R2	<u> </u>	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5	Collected (ug) 6077 910 1393 2723 607 263 607 263 6727 943 1190 2400	Concentration (ug/L) 0 0 0 0 0 0 0 5 1449 285 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 16961 2141 3764 7227 Sample Lost 0 0 13804 2350 3266 6532 3874	Collected (ug) 605 72 126 249 48 10 477 81 111 111 222 129	Cr/Paint (%) 10.0% 7.9% 9.0% 9.1% 8.0% 3.7% 8.6% 9.3% 9.3%
Run R2 R2 R2 R2 R2 R2 R2 R2 R2 R2 R2 R2 R2	High Range High Range Impactor #2	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 9.5 6.2 4.1 2.5 9.5 6.2 14.5 9.5 14.2 14.5 9.5 14.2 14.5 9.5 14.2 14.5 14.	Collected (ug) 6077 910 1393 2723 607 263 6727 943 1190 2400 1477 573	Concentration (ug/L) 0 0 0 0 0 0 5 1449 285 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 16961 2141 3764 7227 Sample Lost 0 0 13804 2350 3266 6532 3874 0 0 93558	Collected (ug) 605 72 126 249 48 10 477 81 111 222 129 29 11 3104	Cr/Paint (%) 10.0% 7.9% 9.0% 9.1% 8.0% 3.7% 7.1% 8.6% 9.3% 9.3% 5.3% 9.9%
Run R2 R2 R2 R2 R2 R2 R2 R2 R2 R2 R2 R2 R2	High Range High Range Impactor #2	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 11.4 7.0	Collected (ug) 6077 910 1393 2723 607 263 6727 943 1190 2400 1477 573 197 31230 2980	Concentration (ug/L) 0 0 0 0 0 0 5 1449 285 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 16961 2141 3764 7227 Sample Lost 0 0 0 13804 2350 3266 6532 3874 0 0 93558 5771	Collected (ug) 605 72 126 249 48 10 477 81 111 222 129 29 11 3104 185	Cr/Paint (%) 10.0% 7.9% 9.0% 9.1% 8.0% 3.7% 8.6% 9.3% 9.3% 5.3% 9.9% 6.2%
Run R2 R2 R2 R2 R2 R2 R2 R2 R2 R2 R2 R2 R2	High Range High Range Impactor #2	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3	Collected (ug) 6077 910 1393 2723 607 263 6727 943 1190 2400 1477 573 197 31230 2980 1617	Concentration (ug/L) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 16961 2141 3764 7227 Sample Lost 0 0 0 13804 2350 3266 6532 3874 0 0 0 93558 5771 2496	Collected (ug) 605 72 126 249 48 10 477 81 111 1222 129 29 29 11 3104 185 83	Cr/Paint (%) 10.0% 7.9% 9.0% 9.1% 8.0% 3.7% 7.1% 8.6% 9.3% 9.3% 8.8% 5.1% 5.3% 9.9% 6.2% 5.1%
Run R2 R2 R2 R2 R2 R2 R2 R2 R2 R2 R2 R2 R2	High Range High Range Impactor #2	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 2.7 34.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 1.1 2.7 1.4 7.0 1.4 7.0 1.4 7.0 1.4 7.0 2.6 1.4 7.0 1.4 7.0 1.4 7.0 1.4 7.0 1.4 7.0 2.6 1.4 7.0 1.4 7.0 1.4 7.0 1.4 7.0 1.4 7.0 1.4 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0	Collected (ug) 6077 910 1393 2723 607 263 6727 943 1190 2400 1477 573 197 31230 2980 1617 667	Concentration (ug/L) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 16961 2141 3764 7227 Sample Lost 0 0 13804 2350 3266 6532 3874 0 0 93558 5771 2496 452	Collected (ug) 605 72 126 249 48 10 477 81 111 111 222 129 29 11 3104 185 83 20	Cr/Paint (%) 10.0% 7.9% 9.0% 9.1% 8.0% 3.7% 7.1% 8.6% 9.3% 9.3% 5.1% 5.3% 6.2% 5.1% 3.0%
Run R2 R2 R2 R2 R2 R2 R2 R2 R2 R2 R2 R2 R2	High Range High Range Impactor #2	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3 2.6 1.6	Collected (ug) 6077 910 1393 2723 607 263 6727 943 1190 2400 1477 573 197 31230 2980 1617 667 483	<u>Concentration (ug/L)</u> 0 0 0 0 0 0 5 1449 285 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 16961 2141 3764 7227 Sample Lost 0 0 13804 2350 3266 6532 3874 0 0 93558 5771 2496 452 0	Collected (ug) 605 72 126 249 48 10 477 81 111 222 129 29 29 11 3104 185 83 20 3	Cr/Paint (%) 10.0% 7.9% 9.0% 9.1% 8.0% 3.7% 7.1% 8.6% 9.3% 9.3% 9.3% 9.3% 9.3% 5.1% 5.3% 9.9% 6.2% 5.1% 3.0% 0.7%
Run R2 R2 R2 R2 R2 R2 R2 R2 R2 R2 R2 R2 R2	High Range Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 14.1 2.7 11.4 7.0 1.6 1.6 1.0	Collected (ug) 6077 910 1393 2723 607 263 6727 943 1190 2400 1477 573 197 31230 2980 1617 667 483 417	Concentration (ug/L) 0 0 0 0 0 0 5 1449 285 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 16961 2141 3764 7227 Sample Lost 0 0 13804 2350 3266 6532 3874 0 0 0 93558 5771 2496 452 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Collected (ug) 605 72 126 249 48 10 477 81 111 222 129 29 11 3104 185 83 20 3 1	Cr/Paint (%) 10.0% 7.9% 9.0% 9.1% 8.0% 3.7% 7.1% 8.6% 9.3% 9.3% 9.3% 9.3% 5.1% 5.3% 9.9% 6.2% 5.1% 3.0% 0.7% 0.2%
Run R2 R2 R2 R2 R2 R2 R2 R2 R2 R2 R2 R2 R2	High Range High Range Impactor #2	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 14.1 2.7 11.4 7.0 1.6 1.6 1.0 0.7	Collected (ug) 6077 910 1393 2723 607 263 6727 943 1190 2400 1477 573 197 31230 2980 1617 667 483 417 370	Concentration (ug/L) 0 0 0 0 0 5 1449 285 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 16961 2141 3764 7227 Sample Lost 0 0 13804 2350 3266 6532 3874 0 0 93558 5771 2496 452 0 0 0 0 0 0 0 0 0 0 0 0 0	Collected (ug) 605 72 126 249 48 10 477 81 111 222 129 29 11 3104 185 83 20 3 1 1 0	Cr/Paint (%) 10.0% 7.9% 9.0% 9.1% 8.0% 3.7% 7.1% 8.6% 9.3% 9.3% 5.3% 5.3% 9.9% 6.2% 5.1% 3.0% 0.7% 0.2% 0.1%
Run R2 R2 R2 R2 R2 R2 R2 R2 R2 R2 R2 R2 R2	Low Range High Range High Range Impactor #1 Impactor #2	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3 2.6 1.6 1.0 0.7 11.4	Collected (ug) 6077 910 1393 2723 607 263 6727 943 1190 2400 1477 573 197 31230 2980 1617 667 483 417 370 25163	Concentration (ug/L) 0 0 0 0 0 5 1449 285 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 16961 2141 3764 7227 Sample Lost 0 0 13804 2350 3266 6532 3274 0 0 93558 5771 2496 452 0 0 0 75540	Collected (ug) 605 72 126 249 48 10 477 81 111 222 129 29 11 3104 185 83 20 31 1 10 2570	Cr/Paint (%) 10.0% 7.9% 9.0% 9.1% 8.0% 3.7% 8.6% 9.3% 8.8% 5.1% 5.3% 9.9% 6.2% 5.1% 3.0% 0.7% 0.2% 0.1% 10.2%
Run R2 R2 R2 R2 R2 R2 R2 R2 R2 R2 R2 R2 R2	Low Range High Range High Range Impactor #1 Impactor #2	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3 2.6 1.6 1.0 0.7 11.4 7.0	Collected (ug) 6077 910 1393 2723 607 263 6727 943 1190 2400 1477 573 197 31230 2980 1617 667 483 417 573 370 25163 3087	Concentration (ug/L) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 16961 2141 3764 7227 Sample Lost 0 0 0 13804 2350 3266 6532 3274 0 0 93558 5771 2496 452 0 0 0 75540 5754	Collected (ug) 605 72 126 249 48 10 477 81 111 222 129 29 11 3104 185 83 20 3 1 0 2570 195	Cr/Paint (%) 10.0% 7.9% 9.0% 9.1% 8.0% 3.7% 7.1% 8.6% 9.3% 9.3% 8.8% 5.1% 5.3% 9.9% 6.2% 5.1% 3.0% 0.7% 0.2% 0.1% 10.2% 6.3%
Run R2 R2 R2 R2 R2 R2 R2 R2 R2 R2 R2 R2 R2	Low Range High Range High Range Impactor #1 Impactor #2	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3 2.6 1.6 1.0 0.7 11.4 7.0 4.3	Collected (ug) 6077 910 1393 2723 607 263 6727 943 1190 2400 1477 573 197 31230 2980 1617 667 483 417 370 25163 3087 1677	Concentration (ug/L) 0 0 0 0 0 0 0 0 0 0 0 1449 285 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 16961 2141 3764 7227 Sample Lost 0 0 0 13804 2350 3266 6532 3874 0 0 0 93558 5771 2496 452 0 0 0 0 0 5754 2470	Collected (ug) 605 72 126 249 48 10 477 81 111 222 129 29 11 3104 185 83 20 31 10 2570 195 81	Cr/Paint (%) 10.0% 7.9% 9.0% 9.1% 8.0% 3.7% 7.1% 8.6% 9.3% 9.3% 9.3% 9.3% 9.3% 9.3% 9.3% 9.3% 9.3% 0.3% 0.2% 0.2% 0.2% 0.2% 0.2% 0.2% 0.2% 0.2% 0.3% 0.2% 0.2% 0.2% 0.3% 0.2% 0.2% 0.3% 0.2% 0.3% 0.3% 0.3% 0.3% 0.3% 0.3% 0.3% 0.3% 0.3% 0.2% 0.3% 0.3% 0.2% 0.3% 0.2
Run R2 R2 R2 R2 R2 R2 R2 R2 R2 R2 R2 R2 R2	Low Range High Range High Range Impactor #1 Impactor #2	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3 2.6 1.6 1.0 0.7 11.4 7.0 4.3 2.6	Collected (ug) 6077 910 1393 2723 607 263 6727 943 1190 2400 1477 573 197 31230 2980 1617 667 483 417 370 25163 3087 1677 767	Concentration (ug/L) 0 0 0 0 0 0 5 1449 285 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 16961 2141 3764 7227 Sample Lost 0 0 13804 2350 3266 6532 3874 0 0 93558 5771 2496 452 0 0 0 0 75540 2470 528	Collected (ug) 605 72 126 249 48 10 477 81 111 222 129 29 29 11 3104 185 83 20 31 1 0 2570 195 81 21 2570 195 81 21 2570 81 21 2570 81 21 2570 2570 81 21 2570 2570 81 21 2570 25	Cr/Paint (%) 10.0% 7.9% 9.0% 9.1% 8.0% 3.7% 7.1% 8.6% 9.3% 9.3% 9.3% 9.3% 9.3% 5.1% 5.3% 9.9% 6.2% 5.1% 5.3% 0.2% 0.1% 0.2% 0.1% 6.3% 4.8% 2.8%
Run R2 R2 R2 R2 R2 R2 R2 R2 R2 R2 R2 R2 R2	Low Range High Range High Range Impactor #1 Impactor #2	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3 2.6 1.6 1.0 0.7 11.4 7.0 4.3 2.6 1.6 1.6 1.6 1.6 1.6 1.6 1.6 1	Collected (ug) 6077 910 1393 2723 607 263 6727 943 1190 2400 1477 573 197 31230 2980 1617 667 483 417 370 25163 3087 1677 767 530	Concentration (ug/L) 0 0 0 0 0 0 5 1449 285 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 16961 2141 3764 7227 Sample Lost 0 0 13804 2350 3266 6532 3874 0 0 0 93558 5771 2496 452 0 0 0 75540 5754 2470 5754 2470 528 0	Collected (ug) 605 72 126 249 48 100 477 81 111 222 129 29 11 3104 185 83 20 3104 185 83 20 3104 185 83 20 3104 185 83 20 3104 185 83 20 31 3104 185 83 20 33 31 3 31 3 3 3 3 3 3 3 3 3 3 3 3 3 3	Cr/Paint (%) 10.0% 7.9% 9.0% 9.1% 8.0% 3.7% 7.1% 8.6% 9.3% 9.3% 9.3% 9.3% 9.3% 9.3% 5.1% 5.3% 0.2% 0.1% 10.2% 6.3% 4.8% 2.8% 0.5%
Run R2 R2 R2 R2 R2 R2 R2 R2 R2 R2 R2 R2 R2	High Range High Range Impactor #2	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3 2.6 1.6 1.0 0.7 1.6 1.0	Collected (ug) 6077 910 1393 2723 607 263 6727 943 1190 2400 1477 573 197 31230 2980 1617 667 483 417 370 25163 3087 1677 767 530	Concentration (ug/L) 0 0 0 0 0 5 1449 285 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 16961 2141 3764 7227 Sample Lost 0 0 13804 2350 3266 6532 3874 0 0 0 93558 5771 2496 452 0 0 0 75540 5754 2470 528 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Collected (ug) 605 72 126 249 48 10 477 81 111 222 129 29 11 3104 185 83 20 31 4 7 7 81 3104 185 83 20 3 1 0 2570 195 81 2570 195 81 23 1 23	Cr/Paint (%) 10.0% 7.9% 9.0% 9.1% 8.0% 3.7% 8.6% 9.3% 9.3% 8.8% 5.3% 5.3% 5.3% 9.9% 6.2% 5.1% 3.0% 0.7% 0.2% 0.1% 10.2% 6.3% 4.8% 2.8% 0.5% 0.1%
Run R2 R2 R2 R2 R2 R2 R2 R2 R2 R2 R2 R2 R2	Low Range Low Range High Range High Range Impactor #2 Impactor #1 Impactor #2 Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3 2.6 1.6 1.0 0.7 11.4 7.0 4.3 2.6 1.6 1.6 1.6 1.6 1.6 1.6 1.6 1	Collected (ug) 6077 910 1393 2723 607 263 6727 943 1190 2400 1477 573 197 31230 2980 1617 667 483 417 370 25163 3087 1677 767 530	Concentration (ug/L) 0 0 0 0 0 0 5 1449 285 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 16961 2141 3764 7227 Sample Lost 0 0 13804 2350 3266 6532 3874 0 0 0 93558 5771 2496 452 0 0 0 75540 5754 2470 5754 2470 528 0	Collected (ug) 605 72 126 249 48 100 477 81 111 222 129 29 11 3104 185 83 20 3104 185 83 20 3104 185 83 20 3104 185 83 20 3104 185 83 20 31 3104 185 83 20 33 31 3 31 3 3 3 3 3 3 3 3 3 3 3 3 3 3	Cr/Paint (%) 10.0% 7.9% 9.0% 9.1% 8.0% 3.7% 8.6% 9.3% 9.3% 9.3% 5.1% 5.3% 9.9% 6.2% 5.1% 3.0% 0.7% 0.2% 0.1% 0.1% 0.1% 0.1% 0.1% 0.1%

Sample		Particle Size	Mass of Dry Paint	AAS Furnace Cr	AAS Flame Cr	Mass Cr(VI)	Mass
Run	Impactor	(MMAD - um)	Collected (ug)	Concentration (ug/L)	Concentration (ug/L)	Collected (ug)	Cr/Paint (%)
R3		34.1	6050	0	12016	410	6.8%
R3	m –	22.2	740	0	1636	57	7.7%
R3	bu #	14.5	943	0	2356	79	8.4%
R3	High Range Impactor #1	9.5	1490	0	3884 8490	131 73	8.8% 8.8%
R3	hgh	6.2	830 313	2227 785	0490 0	27	8.7%
R3 R3	ΞĿ	4.1 2.7	110	131	0	4	4.1%
R3		34.1	4577	0	12852	440	9.6%
R3		22.2	870	0	1324	46	5.3%
R3	θN	14.5	943	2045	1584	70	7.4%
R3	ung #	9.5	1630	0	3521	115	7.1%
R3	ъ р	6.2	1070	0	188 2	64	6.0%
R3	High Range Impactor #2	4.1	503	779	0	27	5.3%
R3	ТE	2.7	177	141	0	5	2.7%
R3		11.4	18987	0	50712	1700	9.0%
R3		7.0	1727	0	3792 1639	122 55	7.1% 6.2%
R3	fge #1	4.3	880 373	0 436	0	55 14	8.2% 3.9%
R3 R3	an	2.6 1.6	227	430	0	2	0.9%
R3	Low Range Impactor #1	1.0	153	16	0	1	0.3%
R3	<u> </u>	0.7	90	8	0	0	0.3%
R3		11.4	18410	0	47584	1586	8.6%
R3		7.0	1180	0	2088	70	6.0%
R3	Low Range Impactor #2	4.3	917	0	1274	42	
R3	cto	2.6	593	287	0	10	
R3	N B	1.6	530	55 17	0	2 1	0.4% 0.1%
R3	75	1.0 0.7	423 • 370	9	0	0	0.1%
R3 R3	Cart	ridge Filter	16287	0	44008	1481	9.1%
					· · · · · · · · · · · · · · · · · · ·		
Sample	Impostor	Particle Size	Mass of Dry Paint	AAS Furnace Cr	AAS Flame Cr	Mass Cr(VI)	Mass
Sample Run	Impactor	Particle Size (MMAD - um)	Mass of Dry Paint Collected (ug)	AAS Furnace Cr Concentration (ug/L)	AAS Flame Cr Concentration (ug/L)	Mass Cr(VI) Collected (ug)	Mass Cr/Paint (%)
	Impactor						
Run	Impactor	(MMAD - um)	Collected (ug)	Concentration (ug/L)	Concentration (ug/L)	Collected (ug)	Cr/Paint (%)
Run R4		(MMAD - um) 34.1					Cr/Paint (%) 7.5%
Run		(MMAD - um)	Collected (ug) 5147	Concentration (ug/L)	Concentration (ug/L) 11275 0 4850	Collected (ug) 387 0 162	Cr/Paint (%) 7.5% 0.0% 8.3%
Run R4 R4		(MMAD - um) 34.1 22.2	Collected (ug) 5147 923 1953 2287	Concentration (ug/L) 0 0 0 0 0	Concentration (ug/L) 11275 0 4850 5631	Collected (ug) 387 0 162 190	Cr/Paint (%) 7.5% 0.0% 8.3% 8.3%
Run R4 R4 R4 R4 R4 R4 R4		(MMAD - um) 34.1 22.2 14.5 9.5 6.2	Collected (ug) 5147 923 1953 2287 1740	Concentration (ug/L) 0 0 0 0 0 0 0 0	Concentration (ug/L) 11275 0 4850 5631 4002	Collected (ug) 387 0 162 190 133	Cr/Paint (%) 7.5% 0.0% 8.3% 8.3% 7.7%
Run R4 R4 R4 R4 R4 R4 R4 R4	High Range Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1	Collected (ug) 5147 923 1953 2287 1740 753	Concentration (ug/L) 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 11275 0 4850 5631 4002 1178	Collected (ug) 387 0 162 190 133 40	Cr/Paint (%) 7.5% 0.0% 8.3% 8.3% 7.7% 5.3%
Run R4 R4 R4 R4 R4 R4 R4 R4 R4		(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7	Collected (ug) 5147 923 1953 2287 1740 753 383	Concentration (ug/L) 0 0 0 0 0 0 0 0 0 0 224	Concentration (ug/L) 11275 0 4850 5631 4002 1178 0	Collected (ug) 387 0 162 190 133 40 8	Cr/Paint (%) 7.5% 0.0% 8.3% 8.3% 7.7% 5.3% 2.1%
Run R4 R4 R4 R4 R4 R4 R4 R4 R4	High Range Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1	Collected (ug) 5147 923 1953 2287 1740 753 383 4920	Concentration (ug/L) 0 0 0 0 0 0 0 0 0 0 224 0	Concentration (ug/L) 11275 0 4850 5631 4002 1178 0 8877	Collected (ug) 387 0 162 190 133 40	Cr/Paint (%) 7.5% 0.0% 8.3% 8.3% 7.7% 5.3% 2.1% 6.4%
Run R4 R4 R4 R4 R4 R4 R4 R4 R4 R4 R4	High Range Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2	Collected (ug) 5147 923 1953 2287 1740 753 383	Concentration (ug/L) 0 0 0 0 0 0 0 0 0 0 224	Concentration (ug/L) 11275 0 4850 5631 4002 1178 0	Collected (ug) 387 0 162 190 133 40 8 315	Cr/Paint (%) 7.5% 0.0% 8.3% 7.7% 5.3% 2.1% 6.4% 7.7%
Run R4 R4 R4 R4 R4 R4 R4 R4 R4	High Range Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1	Collected (ug) 5147 923 1953 2287 1740 753 383 383 4920 1470	Concentration (ug/L) 0 0 0 0 0 0 0 0 0 0 0 224 0 0 0 0 0 0 0	Concentration (ug/L) 11275 0 4850 5631 4002 1178 0 8877 3300 2436 5406	Collected (ug) 387 0 162 190 133 40 8 315 113 82 178	Cr/Paint (%) 7.5% 0.0% 8.3% 7.7% 5.3% 2.1% 6.4% 7.7% 7.9% 7.1%
Run R4 R4 R4 R4 R4 R4 R4 R4 R4 R4 R4 R4	High Range Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5	Collected (ug) 5147 923 1953 2287 1740 753 383 4920 1470 1033 2520 2043	Concentration (ug/L) 0 0 0 0 0 0 0 0 0 0 224 0 0 0 0 0 0 0 0	Concentration (ug/L) 11275 0 4850 5631 4002 1178 0 8877 3300 2436 5406 4451	Collected (ug) 387 0 162 190 133 40 8 315 113 82 178 146	Cr/Paint (%) 7.5% 0.0% 8.3% 7.7% 5.3% 2.1% 6.4% 7.7% 7.9% 7.1% 7.1%
Run R4 R4 R4 R4 R4 R4 R4 R4 R4 R4 R4 R4 R4		(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1	Collected (ug) 5147 923 1953 2287 1740 753 383 4920 1470 1033 2520 2043 210	Concentration (ug/L) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 11275 0 4850 5631 4002 1178 0 8877 3300 2436 5406 4451 0	Collected (ug) 387 0 162 190 133 40 8 315 113 82 178 146 5	Cr/Paint (%) 7.5% 0.0% 8.3% 8.3% 5.3% 2.1% 6.4% 7.7% 7.9% 7.1% 7.1% 7.1% 2.2%
Run R4 R4 R4 R4 R4 R4 R4 R4 R4 R4 R4 R4 R4	High Range Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.5 6.2 4.1 2.7	Collected (ug) 5147 923 1953 2287 1740 753 383 4920 1470 1033 2520 2043 210 307	Concentration (ug/L) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 11275 0 4850 5631 4002 1178 0 8877 3300 2436 5406 4451 0 0 0 0 0 0 0 0 0 0 0 0 0	Collected (ug) 387 0 162 190 133 40 8 315 113 82 178 146 5 5	Cr/Paint (%) 7.5% 0.0% 8.3% 7.7% 5.3% 2.1% 6.4% 7.7% 7.9% 7.1% 7.1% 2.2% 1.6%
Run R4 R4 R4 R4 R4 R4 R4 R4 R4 R4 R4 R4 R4	High Range High Range Impactor #2 Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 14.5 9.5 6.2 4.1 2.7 14.5 9.5 14.7 14.4 14.7 14.4	Collected (ug) 5147 923 1953 2287 1740 753 383 4920 1470 1033 2520 2043 210 307 27317	Concentration (ug/L) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 11275 0 4850 5631 4002 1178 0 8877 3300 2436 5406 4451 0 0 0 62568	Collected (ug) 387 0 162 190 133 40 8 315 113 82 178 146 5 5 2194	Cr/Paint (%) 7.5% 0.0% 8.3% 5.3% 2.1% 6.4% 7.7% 7.1% 7.1% 2.2% 1.6% 8.0%
Run R4 R4 R4 R4 R4 R4 R4 R4 R4 R4 R4 R4 R4	High Range High Range Impactor #2 Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 14.7 14.5 9.5 14.7 12.7 14.5 9.5 14.7 12.7 14.5 9.5 14.7 12.7 14.7 12.7 14.7 12.7 14.7 12.7 14.7 12.7 14.7 12.7 14.7 12.7 14.7 12.7 14.7 12.7 11.4 7.0	Collected (ug) 5147 923 1953 2287 1740 753 383 4920 1470 1033 2520 2043 210 307 27317 2130	Concentration (ug/L) 0 0 0 0 0 0 0 0 224 0 0 0 137 138 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 11275 0 4850 5631 4002 1178 0 8877 3300 2436 5406 4451 0 0 62568 0	Collected (ug) 387 0 162 190 133 40 8 315 113 82 178 146 5 5 2194 0	Cr/Paint (%) 7.5% 0.0% 8.3% 8.3% 7.7% 5.3% 2.1% 6.4% 7.7% 7.1% 7.1% 7.1% 2.2% 1.6% 8.0% 0.0%
Run R4 R4 R4 R4 R4 R4 R4 R4 R4 R4 R4 R4 R4	High Range High Range Impactor #2 Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3	Collected (ug) 5147 923 1953 2287 1740 753 383 4920 1470 1033 2520 2043 210 307 27317 2130 1397	Concentration (ug/L) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 11275 0 4850 5631 4002 1178 0 8877 3300 2436 5406 4451 0 0 0 62568	Collected (ug) 387 0 162 190 133 40 8 315 113 82 178 146 5 5 2194	Cr/Paint (%) 7.5% 0.0% 8.3% 8.3% 7.7% 5.3% 2.1% 7.7% 7.1% 7.1% 7.1% 2.2% 1.6% 8.0% 0.0% 6.8%
Run R4 R4 R4 R4 R4 R4 R4 R4 R4 R4 R4 R4 R4	High Range High Range Impactor #2 Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3 2.6	Collected (ug) 5147 923 1953 2287 1740 753 383 4920 1470 1033 2520 2043 210 307 27317 2130	Concentration (ug/L) 0 0 0 0 0 0 0 0 224 0 0 0 137 138 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 11275 0 4850 5631 4002 1178 0 8877 3300 2436 5406 4451 0 0 62568 0 0 0 0	Collected (ug) 387 0 162 190 133 40 8 315 113 82 178 146 5 5 2194 0 95	Cr/Paint (%) 7.5% 0.0% 8.3% 5.3% 2.1% 6.4% 7.7% 7.9% 7.1% 2.2% 1.6% 8.0% 0.0% 6.8% 6.8% 0.5%
Run R4 R4 R4 R4 R4 R4 R4 R4 R4 R4 R4 R4 R4	High Range Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3	Collected (ug) 5147 923 1953 2287 1740 753 383 4920 1470 1033 2520 2043 2520 2043 210 307 27317 2130 1397 580	Concentration (ug/L) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 11275 0 4850 5631 4002 1178 0 8877 3300 2436 5406 4451 0 0 62568 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Collected (ug) 387 0 162 190 133 40 8 315 113 82 178 146 5 2194 0 95 14 3 14 3 14 3 14 3 14 3 14 3 14 3 14 14 14 14 14 14 14 14 14 14	Cr/Paint (%) 7.5% 0.0% 8.3% 7.7% 5.3% 2.1% 6.4% 7.7% 7.9% 7.1% 2.2% 1.6% 8.0% 0.0% 6.8% 2.4% 0.5% 0.3%
Run R4 R4 R4 R4 R4 R4 R4 R4 R4 R4 R4 R4 R4	High Range High Range Impactor #2 Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3 2.6 1.6 1.0 0.7	Collected (ug) 5147 923 1953 2287 1740 753 383 4920 1470 1033 2520 2043 210 307 27317 2130 1397 580 497 357 280	Concentration (ug/L) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 11275 0 4850 5631 4002 1178 0 8877 3300 2436 5406 4451 0 0 62568 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Collected (ug) 387 0 162 190 133 40 8 315 113 82 178 146 5 2194 0 95 14 3 14 14 3 14 14 14 14 14 14 14 14 14 14	Cr/Paint (%) 7.5% 0.0% 8.3% 8.3% 7.7% 5.3% 6.4% 7.1% 7.1% 7.1% 7.1% 7.1% 7.1% 7.1% 6.8% 2.2% 1.6% 8.0% 0.0% 6.8% 0.3% 0.5% 0.3%
Run R4 R4 R4 R4 R4 R4 R4 R4 R4 R4 R4 R4 R4	Low Range High Range High Range Impactor #1 Impactor #2 Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 14.1 2.7 11.4 7.0 1.6 1.0 0.7 11.4	Collected (ug) 5147 923 1953 2287 1740 753 383 4920 1470 1033 2520 2043 210 307 27317 2130 1397 580 497 357 280	Concentration (ug/L) 0 0 0 0 0 0 0 0 0 0 224 0 0 0 137 138 0 0 0 2765 413 74 34 15 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 11275 0 11275 0 4850 5631 4002 1178 0 0 8877 3300 2436 5406 4451 0 0 62568 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Collected (ug) 387 0 162 190 133 40 8 315 113 82 178 146 5 5 2194 0 95 14 3 1 1 1958	Cr/Paint (%) 7.5% 0.0% 8.3% 8.3% 7.7% 5.3% 2.1% 6.4% 7.7% 7.1% 7.1% 7.1% 2.2% 1.6% 8.0% 0.0% 6.8% 2.4% 0.5% 0.3% 0.3% 0.2%
Run R4 R4 R4 R4 R4 R4 R4 R4 R4 R4 R4 R4 R4	Low Range High Range High Range Impactor #1 Impactor #2 Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3 2.6 1.6 1.0 0.7 11.4 7.0	Collected (ug) 5147 923 1953 2287 1740 753 383 4920 1470 1033 2520 2043 210 307 27317 2130 1397 580 497 357 280 21647 3353	Concentration (ug/L) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 11275 0 11275 0 4850 5631 4002 1178 0 8877 3300 2436 5406 4451 0 0 62568 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Collected (ug) 387 0 162 190 133 40 8 315 113 82 178 146 5 2194 0 95 2194 0 95 14 3 14 3 14 0 95 0 14 0 95 0 14 0 95 0 14 0 0 15 0 15 11 15 17 17 17 17 17 17 17 17 17 17	Cr/Paint (%) 7.5% 0.0% 8.3% 8.3% 7.7% 5.3% 2.1% 6.4% 7.7% 7.9% 7.1% 7.1% 7.1% 2.2% 1.6% 8.0% 0.0% 6.8% 2.4% 0.5% 0.3% 0.2% 9.0% 0.0%
Run R4 R4 R4 R4 R4 R4 R4 R4 R4 R4 R4 R4 R4	Low Range High Range High Range Impactor #1 Impactor #2 Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3 2.6 1.6 1.0 0.7 11.4 7.0 4.3	Collected (ug) 5147 923 1953 2287 1740 753 383 4920 1470 1033 2520 2043 210 307 27317 2130 1397 580 497 357 280 21647 3353 1453	Concentration (ug/L) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 11275 0 4850 5631 4002 1178 0 8877 3300 2436 5406 4451 0 0 62568 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Collected (ug) 387 0 162 190 133 40 8 315 113 82 178 146 5 5 2194 0 95 2194 0 95 144 145 145 146 0 95 146 146 146 146 146 146 146 146	Cr/Paint (%) 7.5% 0.0% 8.3% 8.3% 7.7% 7.1% 2.1% 6.4% 7.7% 7.9% 7.1% 2.2% 1.6% 8.0% 0.0% 6.8% 0.2% 0.3% 0.2% 0.0% 0.0% 0.0% 6.8%
Run R4 R4 R4 R4 R4 R4 R4 R4 R4 R4 R4 R4 R4	Low Range High Range High Range Impactor #1 Impactor #2 Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3 2.6 1.6 1.0 0.7 11.4 7.0 4.3 2.6	Collected (ug) 5147 923 1953 2287 1740 753 383 4920 1470 1033 2620 2043 210 307 27317 2130 1397 580 497 357 280 21647 3353 1453 613	Concentration (ug/L) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 11275 0 4850 5631 4002 1178 0 8877 3300 2436 5406 4451 0 0 62568 0 0 0 0 0 0 0 0 0 0 0 56944 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Collected (ug) 387 0 162 190 133 40 8 315 113 82 178 146 5 2194 0 95 14 3 14 3 14 0 95 14 3 1 1958 0 99 17	Cr/Paint (%) 7.5% 0.0% 8.3% 8.3% 7.7% 5.3% 2.1% 6.4% 7.7% 7.1% 7.9% 7.1% 2.2% 1.6% 8.0% 0.0% 6.8% 0.5% 0.3% 0.2% 9.0% 6.8% 2.7%
Run R4 R4 R4 R4 R4 R4 R4 R4 R4 R4 R4 R4 R4	Low Range High Range High Range Impactor #1 Impactor #2 Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3 2.6 1.6 1.6 1.6 1.6 1.6 1.6 1.6 1	Collected (ug) 5147 923 1953 2287 1740 753 383 4920 1470 1033 2520 2043 210 307 27317 2130 1397 580 497 357 280 21647 3353 1453 613 457	Concentration (ug/L) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 11275 0 4850 5631 4002 1178 0 8877 3300 2436 5406 4451 0 0 62568 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Collected (ug) 387 0 162 190 133 40 8 315 113 82 178 146 5 5 2194 0 95 2194 0 95 144 145 145 146 0 95 146 146 146 146 146 146 146 146	Cr/Paint (%) 7.5% 0.0% 8.3% 8.3% 7.7% 5.3% 6.4% 7.7% 7.1% 7.9% 7.1% 2.2% 1.6% 8.0% 0.0% 6.8% 0.0% 6.8% 0.24% 0.5% 0.3% 0.2% 9.0% 0.0% 6.8% 2.47% 0.8%
Run R4 R4 R4 R4 R4 R4 R4 R4 R4 R4 R4 R4 R4	Low Range Low Range High Range High Range Impactor #2 Impactor #1 Impactor #2 Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3 2.6 1.6 1.0 0.7 11.4 7.0 4.3 2.6 1.6 1.0 0.7	Collected (ug) 5147 923 1953 2287 1740 753 383 4920 1470 1033 2620 2043 210 307 27317 2130 1397 580 497 357 280 21647 3353 1453 613	Concentration (ug/L) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 11275 0 11275 0 4850 5631 4002 1178 0 8877 3300 2436 5406 4451 0 0 62568 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Collected (ug) 387 0 162 190 133 40 8 315 113 82 178 146 5 2194 0 95 2194 0 95 14 3 1 1958 0 99 97 17 4	Cr/Paint (%) 7.5% 0.0% 8.3% 8.3% 7.7% 5.3% 6.4% 7.1% 7.1% 7.1% 7.1% 7.1% 7.1% 7.1% 7.1
Run R4 R4	Low Range Low Range High Range High Range Impactor #2 Impactor #1 Impactor #2 Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3 2.6 1.6 1.0 0.7 11.4 7.0 4.3 2.6 1.6 1.0 1.6 1.0	Collected (ug) 5147 923 1953 2287 1740 753 383 4920 1470 1033 2520 2043 210 307 27317 2130 1397 580 497 357 280 21647 3353 1453 613 457 327	Concentration (ug/L) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 11275 0 11275 0 4850 5631 4002 1178 0 8877 3300 2436 5406 4451 0 0 62568 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Collected (ug) 387 0 162 190 133 40 8 315 113 82 178 146 5 5 2194 0 95 14 3 14 3 14 3 11 1958 0 99 17 4 14 1958 1958 1958 190 190 190 190 190 190 190 190	Cr/Paint (%) 7.5% 0.0% 8.3% 7.7% 5.3% 6.4% 7.7% 7.1% 7.1% 7.1% 7.1% 2.2% 1.6% 8.0% 0.0% 6.8% 0.0% 6.8% 0.3% 0.2% 9.0% 0.0% 6.8% 0.2%

Sample			Mana of Day Dalat	AAC European Ca		Mass Cr(V)	Masa
	Impactor	Particle Size	Mass of Dry Paint	AAS Furnace Cr	AAS Flame Cr	Mass Cr(VI)	Mass
Run		(MMAD - um)	Collected (ug)	Concentration (ug/L)	Concentration (ug/L)	Collected (ug)	Cr/Paint (%)
				<u>^</u>	5000	475	0.00/
R5		34.1	2777	0	5392	175	6.3%
R5	High Range Impactor #1	22.2	667	915	0	31	4.6%
R5	ਰੰਗ	14.5	883	1345	0	46	5.3%
R5	gra	9.5	1427	0	2109	70	4.9%
R5	- bë	6.2	1107	0	1500	50	4.5%
R5	エニ	4.1	630	612	0	21	3.3%
R5		2.7	457	263	0	8	1.8%
R5		34.1	3413	0	4270	144	4.2%
R5	6 0	22.2	963	0	1352	44	4.6%
R5	5,#	14.5	683	1132	0	37	5.4%
R5	8.8	9.5	1353	0	2080	69	5.1%
R5	56	6.2	1033	0	1395	48	4.6%
R5	High Range Impactor #2	4.1	683	705	0	23	3.4%
R5		2.7	443	239	0	8	1.8%
R5		11.4	18467	0	37832	1280	6.9%
R5	ωτ	7.0	1400	0	1857	64	
R5	Ď#	4.3	1010	0	1053	36	3.5%
R5	R a	2.6	637	469	0	16	2.5%
R5	Low Range Impactor #1	1.6	523	247	0	8	
R5	<u><u> </u></u>	1.0	433	142	0 0	5	
R5 R5		0.7	370	68	0	2	0.6%
R5 R5		11.4	15183	0	29140	1030	6.8%
R5 R5		7.0	1287	2216	0	74	
R5	₽ ¥	4.3	850	1159	0	39	4.6%
R5	torar	2.6	587	481	0	16	2.6%
	a v	1.6	480	275	0	9	1.9%
R5	Low Range Impactor #2	1.0	400	184	0	6	1.5%
R5 R5		0.7	340	64	0	2	0.6%
R5 R5	Cart	ridge Filter	18233	04	33280	1198	6.6%
Rə	Caru		10200	0	33200	1130	0.078
Comple		Dorticlo Sizo	Mass of Day Paint		AAS Flame Cr	Mass Cr(VI)	Mass
Sample	Impactor	Particle Size	Mass of Dry Paint	AAS Furnace Cr	AAS Flame Cr	Mass Cr(VI)	Mass Cr/Paint (%)
Sample Run	Impactor	Particle Size (MMAD - um)	Mass of Dry Paint Collected (ug)	AAS Furnace Cr Concentration (ug/L)	AAS Flame Cr Concentration (ug/L)	Mass Cr(VI) Collected (ug)	Mass Cr/Paint (%)
	Impactor						
Run	Impactor	(MMAD - um)	Collected (ug)	Concentration (ug/L)	Concentration (ug/L)	Collected (ug)	Cr/Paint (%)
Run R6		(MMAD - um) 34.1	Collected (ug) 3283	Concentration (ug/L)	Concentration (ug/L) 4588	Collected (ug) 151	Cr/Paint (%) 4.6%
Run R6 R6		(MMAD - um) 34.1 22.2	Collected (ug) 3283 660	Concentration (ug/L) 0 0	Concentration (ug/L) 4588 1000	Collected (ug) 151 34	Cr/Paint (%) 4.6% 5.1%
Run R6 R6 R6		(MMAD - um) 34.1 22.2 14.5	Collected (ug) 3283 660 857	Concentration (ug/L) 0 0 0	Concentration (ug/L) 4588 1000 1250	Collected (ug) 151 34 43	Cr/Paint (%) 4.6% 5.1% 5.0%
Run R6 R6 R6 R6		(MMAD - um) 34.1 22.2 14.5 9.5	<u>Collected (ug)</u> 3283 660 857 2050	Concentration (ug/L) 0 0 0 3464	Concentration (ug/L) 4588 1000 1250 0	Collected (ug) 151 34 43 115	Cr/Paint (%) 4.6% 5.1% 5.0% 5.6%
Run R6 R6 R6 R6 R6		(MMAD - um) 34.1 22.2 14.5 9.5 6.2	<u>Collected (ug)</u> 3283 660 857 2050 1240	Concentration (ug/L) 0 0 0 3464 2310	Concentration (ug/L) 4588 1000 1250 0 0	Collected (ug) 151 34 43 115 74	Cr/Paint (%) 4.6% 5.1% 5.0% 5.6% 6.0%
Run R6 R6 R6 R6 R6 R6 R6 R6	High Range Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1	<u>Collected (ug)</u> 3283 660 857 2050 1240 660	Concentration (ug/L) 0 0 3464 2310 1063	Concentration (ug/L) 4588 1000 1250 0 0 0 0	Collected (ug) 151 34 43 115 74 35	Cr/Paint (%) 4.6% 5.1% 5.0% 5.6% 6.0% 5.3%
Run R6 R6 R6 R6 R6 R6 R6 R6		(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7	Collected (ug) 3283 660 857 2050 1240 660 427	Concentration (ug/L) 0 0 3464 2310 1063 332	Concentration (ug/L) 4588 1000 1250 0 0 0 0 0 0 0 0 0	Collected (ug) 151 34 43 115 74 35 12	Cr/Paint (%) 4.6% 5.1% 5.0% 5.6% 6.0% 5.3% 2.7%
Run R6 R6 R6 R6 R6 R6 R6 R6 R6	High Range Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1	Collected (ug) 3283 660 857 2050 1240 660 427 3643	Concentration (ug/L) 0 0 0 3464 2310 1063 332 0	Concentration (ug/L) 4588 1000 1250 0 0 0 4825	Collected (ug) 151 34 43 115 74 35 12 160	Cr/Paint (%) 4.6% 5.1% 5.0% 5.6% 6.0% 5.3% 2.7% 4.4%
Run R6 R6 R6 R6 R6 R6 R6 R6 R6 R6 R6	High Range Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2	<u>Collected (ug)</u> 3283 660 857 2050 1240 660 427 3643 603	Concentration (ug/L) 0 0 0 3464 2310 1063 332 0 1268	Concentration (ug/L) 4588 1000 1250 0 0 0 0 0 4825 0	Collected (ug) 151 34 43 115 74 35 12 160 44	Cr/Paint (%) 4.6% 5.1% 5.0% 5.6% 6.0% 5.3% 2.7% 4.4% 7.3%
Run R6 R6 R6 R6 R6 R6 R6 R6 R6 R6 R6	High Range Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5	<u>Collected (ug)</u> 3283 660 857 2050 1240 660 427 3643 603 977	Concentration (ug/L) 0 0 0 0 3464 2310 1063 332 0 1268 0	Concentration (ug/L) 4588 1000 1250 0 0 0 0 4825 4825 0 1604	Collected (ug) 151 34 43 115 74 35 12 160 44 53	Cr/Paint (%) 4.6% 5.1% 5.0% 5.6% 6.0% 5.3% 2.7% 4.4% 7.3% 5.5%
R6 R6 R6 R6 R6 R6 R6 R6 R6 R6 R6 R6 R6	High Range Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 2.7 34.1 2.2 14.5 9.5	<u>Collected (ug)</u> 3283 660 857 2050 1240 660 427 3643 603 977 1873	Concentration (ug/L) 0 0 0 3464 2310 1063 332 0 1268 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 4588 1000 1250 0 0 0 0 0 0 0 4825 0 4825 0 0 1604 3326	Collected (ug) 151 34 43 115 74 35 12 160 44 53 106	Cr/Paint (%) 4.6% 5.1% 5.0% 5.6% 6.0% 5.3% 2.7% 4.4% 7.3% 5.5% 5.6%
Run R6 R6 R6 R6 R6 R6 R6 R6 R6 R6 R6 R6	High Range Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 2.7 34.1 2.2 14.5 9.5 6.2	Collected (ug) 3283 660 857 2050 1240 660 427 3643 603 977 1873 1370	Concentration (ug/L) 0 0 0 3464 2310 1063 332 0 1268 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 4588 1000 1250 0 0 0 0 0 4825 0 1604 3326 1901	Collected (ug) 151 34 43 115 74 35 12 160 44 53 106 65	Cr/Paint (%) 4.6% 5.1% 5.0% 5.6% 6.0% 5.3% 2.7% 4.4% 7.3% 5.5% 5.6% 4.7%
Run R6 R6 R6 R6 R6 R6 R6 R6 R6 R6 R6 R6 R6		(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1	Collected (ug) 3283 660 857 2050 1240 660 427 3643 603 977 1873 1370 653	Concentration (ug/L) 0 0 0 0 3464 2310 1063 332 0 1268 0 0 0 0 782	Concentration (ug/L) 4588 1000 1250 0 0 0 0 0 0 0 4825 0 4825 0 0 1604 3326	Collected (ug) 151 34 43 115 74 35 12 160 44 53 106 65 25	Cr/Paint (%) 4.6% 5.1% 5.0% 5.6% 6.0% 2.7% 4.4% 7.3% 5.5% 5.6% 4.7% 3.8%
Run R6 R6 R6 R6 R6 R6 R6 R6 R6 R6 R6 R6 R6	High Range Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 22.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7	Collected (ug) 3283 660 857 2050 1240 660 427 3643 603 977 1873 1370 653 380	Concentration (ug/L) 0 0 0 3464 2310 1063 332 0 1268 0 0 782 339	Concentration (ug/L) 4588 1000 1250 0 0 0 0 4825 0 1604 3326 1901 0 0 0	Collected (ug) 151 34 43 115 74 35 12 160 44 53 106 65 25 12 12 12 106 107 107 107 107 107 107 107 107	Cr/Paint (%) 4.6% 5.1% 5.0% 5.6% 6.0% 5.3% 2.7% 4.4% 7.3% 5.5% 5.6% 4.7% 3.8% 3.1%
Run R6 R6 R6 R6 R6 R6 R6 R6 R6 R6 R6 R6 R6	High Range High Range Impactor #2 Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 27 11.4	<u>Collected (ug)</u> 3283 660 857 2050 1240 660 427 3643 603 977 1873 1370 653 380 18940	Concentration (ug/L) 0 0 0 3464 2310 1063 332 0 1268 0 0 782 339 0 0	Concentration (ug/L) 4588 1000 1250 0 0 0 0 0 4825 0 1604 3326 1901 0 0 0 38048	Collected (ug) 151 34 43 115 74 35 12 160 44 53 106 65 25 12 12 1285	Cr/Paint (%) 4.6% 5.1% 5.0% 5.6% 6.0% 2.7% 4.4% 7.3% 5.5% 5.6% 3.8% 3.1% 6.8%
Run R6 R6 R6 R6 R6 R6 R6 R6 R6 R6 R6 R6 R6	High Range High Range Impactor #2 Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 11.4 7.0	Collected (ug) 3283 660 857 2050 1240 660 427 3643 603 977 1873 1370 653 380 18940 2120	Concentration (ug/L) 0 0 0 0 3464 2310 1063 332 0 1268 0 0 782 339 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 4588 1000 1250 0 0 0 4825 0 4825 0 1604 3326 1901 0 0 38048 2699	Collected (ug) 151 34 43 115 74 35 12 160 44 53 106 65 25 12 1285 96	Cr/Paint (%) 4.6% 5.1% 5.0% 5.6% 6.0% 5.3% 7.3% 7.3% 5.5% 5.6% 4.7% 3.8% 3.1% 6.8% 4.5%
Run R6 R6 R6 R6 R6 R6 R6 R6 R6 R6 R6 R6 R6	High Range High Range Impactor #2 Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 2.7 34.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 11.4 7.0 11.4 7.0 1.4 7.0	Collected (ug) 3283 660 857 2050 1240 660 427 3643 603 977 1873 1370 653 380 18940 2120 1277	Concentration (ug/L) 0 0 0 0 3464 2310 1063 332 0 1268 0 0 1268 0 0 782 339 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 4588 1000 1250 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Collected (ug) 151 34 43 115 74 35 12 160 44 53 106 65 25 12 1285 9 9 43	Cr/Paint (%) 4.6% 5.1% 5.0% 5.6% 6.0% 5.3% 2.7% 4.4% 7.3% 5.5% 5.5% 5.6% 4.7% 3.8% 3.1% 6.8% 4.5% 3.3%
Run R6 R6 R6 R6 R6 R6 R6 R6 R6 R6 R6 R6 R6	High Range High Range Impactor #2 Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 2.7 34.1 2.7 34.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 1.4 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0	Collected (ug) 3283 660 857 2050 1240 660 427 3643 603 977 1873 1370 653 380 18940 2120 2120 1277 817	Concentration (ug/L) 0 0 0 3464 2310 1063 332 0 1268 0 0 0 782 339 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 4588 1000 1250 0 0 0 0 0 0 0 0 0 0 1604 3326 1901 0 0 38048 2699 1287 0	Collected (ug) 151 34 43 115 74 35 12 160 44 53 106 65 25 12 1285 96 43 19	Cr/Paint (%) 4.6% 5.1% 5.0% 5.6% 6.0% 5.3% 2.7% 4.4% 7.3% 5.5% 5.6% 4.7% 3.8% 3.1% 6.8% 4.5% 3.3% 2.3%
Run R6 R6 R6 R6 R6 R6 R6 R6 R6 R6 R6 R6 R6	High Range High Range Impactor #2 Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3 2.6 1.6	Collected (ug) 3283 660 857 2050 1240 660 427 3643 603 977 1873 1370 653 380 18940 2120 1277	Concentration (ug/L) 0 0 0 3464 2310 1063 332 0 1268 0 0 1268 0 0 782 339 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 4588 1000 1250 0 0 0 0 4825 0 1604 3326 1901 0 0 38048 2699 1287 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Collected (ug) 151 34 43 115 74 35 12 160 44 53 106 65 25 12 1285 9 9 43	Cr/Paint (%) 4.6% 5.1% 5.0% 5.6% 6.0% 5.3% 2.7% 4.4% 7.3% 5.5% 5.6% 4.7% 3.8% 3.1% 6.8% 4.5% 3.3% 2.3%
Run R6 R6 R6 R6 R6 R6 R6 R6 R6 R6 R6 R6 R6	High Range Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 22.2 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3 2.6 1.6 1.0	<u>Collected (ug)</u> 3283 660 857 2050 1240 660 427 3643 603 977 1873 1370 653 380 18940 2120 1277 817 577	Concentration (ug/L) 0 0 0 0 3464 2310 1063 332 0 1268 0 0 1268 0 0 0 782 339 0 0 0 0 567 299 S	Concentration (ug/L) 4588 1000 1250 0 0 0 0 4825 0 1604 3326 1901 0 1604 3326 1901 0 0 38048 2699 1287 0 38048 2699 1287 0 38048	Collected (ug) 151 34 43 115 74 35 12 160 44 53 106 65 25 12 1285 96 43 19 10	Cr/Paint (%) 4.6% 5.1% 5.0% 5.6% 6.0% 5.3% 2.7% 4.4% 7.3% 5.5% 5.6% 4.7% 3.8% 3.1% 6.8% 4.5% 3.3% 2.3% 1.7%
Run R6 R6 R6 R6 R6 R6 R6 R6 R6 R6 R6 R6 R6	High Range High Range Impactor #2 Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3 2.6 1.6 1.0 0.7	<u>Collected (ug)</u> 3283 660 857 2050 1240 660 427 3643 603 977 1873 1370 653 380 18940 2120 1277 817 577 393	Concentration (ug/L) 0 0 0 0 3464 2310 1063 332 0 1268 0 0 1268 0 0 0 782 339 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 4588 1000 1250 0 0 0 4825 0 4825 0 1604 3326 1901 0 1604 3326 1901 0 0 38048 2699 1287 0 0 38048 2699 1287 0 38048 2699	Collected (ug) 151 34 43 115 74 35 12 160 44 53 106 65 25 12 1285 96 43 19 10	Cr/Paint (%) 4.6% 5.1% 5.0% 5.6% 6.0% 5.3% 2.7% 4.4% 7.3% 5.5% 5.6% 4.7% 3.8% 3.1% 6.8% 4.5% 3.3% 2.3% 1.7% 0.5%
Run R6 R6 R6 R6 R6 R6 R6 R6 R6 R6 R6 R6 R6	Low Range High Range High Range Impactor #1 Impactor #2	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3 2.6 1.6 1.0 0.7 11.4	Collected (ug) 3283 660 857 2050 1240 660 427 3643 603 977 1873 1370 653 380 18940 2120 1277 817 577 393	Concentration (ug/L) 0 0 0 3464 2310 1063 332 0 0 1268 0 0 782 339 0 0 0 782 339 0 0 0 567 299 \$ 65 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 4588 1000 1250 0 0 0 4825 0 4825 0 4825 0 1604 3326 1901 0 0 38048 2699 1287 0 38048 2699 1287 0 38048	Collected (ug) 151 34 43 115 74 35 12 160 44 53 106 65 25 12 1285 96 43 19 100 2 1098	Cr/Paint (%) 4.6% 5.1% 5.0% 5.6% 6.0% 5.3% 2.7% 4.4% 7.3% 5.5% 5.6% 4.7% 3.8% 3.1% 6.8% 4.5% 3.3% 2.3% 1.7% 0.5% 6.2%
Run R6 R6 R6 R6 R6 R6 R6 R6 R6 R6 R6 R6 R6	Low Range High Range High Range Impactor #1 Impactor #2	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3 2.6 1.6 1.0 0.7 11.4 7.0	Collected (ug) 3283 660 857 2050 1240 660 427 3643 603 977 1873 1370 653 380 18940 2120 1277 817 577 393 17663 2377	Concentration (ug/L) 0 0 0 0 3464 2310 1063 332 0 1268 0 0 1268 0 0 0 0 782 339 0 0 0 0 0 0 0 567 299 \$ 65 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 4588 1000 1250 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Collected (ug) 151 34 43 115 74 35 12 160 44 53 106 65 25 12 1285 96 43 19 10 2 1098 103	Cr/Paint (%) 4.6% 5.1% 5.0% 5.6% 6.0% 5.3% 2.7% 4.4% 7.3% 5.5% 5.6% 4.7% 3.8% 3.1% 6.8% 4.5% 3.3% 2.3% 1.7% 6.2% 4.3%
Run R6 R6 R6 R6 R6 R6 R6 R6 R6 R6 R6 R6 R6	Low Range High Range High Range Impactor #1 Impactor #2	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 2.7 34.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3 2.6 1.6 1.0 0.7 11.4 7.0 4.3	<u>Collected (ug)</u> 3283 660 857 2050 1240 660 427 3643 603 977 1873 1370 653 380 18940 2120 1277 817 577 393 17663 2377 1313	Concentration (ug/L) 0 0 0 3464 2310 1063 332 0 1268 0 0 1268 0 0 0 0 782 339 0 0 0 782 339 0 0 0 567 299 5 65 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 4588 1000 1250 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Collected (ug) 151 34 43 115 74 35 12 160 44 53 106 65 25 12 1285 96 43 19 108 1098 103 45	Cr/Paint (%) 4.6% 5.1% 5.0% 5.6% 6.0% 5.3% 2.7% 4.4% 7.3% 5.5% 5.6% 4.7% 3.8% 3.1% 6.8% 4.5% 3.3% 2.3% 1.7% 0.5% 6.2% 4.3% 3.5%
Run R6 R6 R6 R6 R6 R6 R6 R6 R6 R6 R6 R6 R6	Low Range High Range High Range Impactor #1 Impactor #2	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3 2.6 1.6 1.0 0.7 11.4 7.0 4.3 2.6	<u>Collected (ug)</u> 3283 660 857 2050 1240 660 427 3643 603 977 1873 1370 653 380 18940 2120 1277 817 577 817 577 393 17663 2377 1313 760	Concentration (ug/L) 0 0 0 0 3464 2310 1063 332 0 1268 0 0 1268 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	<u>Concentration (ug/L)</u> 4588 1000 1250 0 0 0 4825 0 1604 3326 1901 0 4825 0 1604 3326 1901 0 0 38048 2699 1287 0 38048 2699 1287 0 33048 2699 1287 0 33048 2699 1287 0 33048 2699 1287 0 0 33048 2699 1287 0 0 31084 3176 3176 3176 3176 3176 3176 3176 3176	Collected (ug) 151 34 43 115 74 35 12 160 44 53 106 65 25 12 1285 96 43 19 1098 103 45 19	Cr/Paint (%) 4.6% 5.1% 5.0% 5.6% 6.0% 5.3% 2.7% 4.4% 7.3% 5.5% 5.6% 4.7% 3.8% 3.1% 6.8% 4.5% 3.3% 1.7% 0.5% 6.2% 4.3% 3.5% 2.5%
Run R6 R6 R6 R6 R6 R6 R6 R6 R6 R6 R6 R6 R6	Low Range High Range High Range Impactor #1 Impactor #2	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3 2.6 1.6 1.0 0.7 11.4 7.0 4.3 2.6 1.6	Collected (ug) 3283 660 857 2050 1240 660 427 3643 603 977 1873 1370 653 380 18940 2120 1277 817 577 393 17663 2377 1313 760 563	Concentration (ug/L) 0 0 0 0 0 3464 2310 1063 332 0 1268 0 0 1268 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 4588 1000 1250 0 0 0 0 0 4825 0 1604 3326 1901 4825 0 1604 3326 1901 0 0 38048 2699 1287 0 38048 2699 1287 0 38048 2699 1287 0 38048 38176 1365 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Collected (ug) 151 34 43 115 74 35 12 160 44 53 106 65 25 12 1285 96 43 19 10 2 1098 103 45 19 103 45 19 103 45 19 103 103 103 103 103 103 103 103	Cr/Paint (%) 4.6% 5.1% 5.0% 5.6% 6.0% 5.3% 2.7% 4.4% 7.3% 5.5% 5.6% 4.7% 3.8% 3.1% 6.8% 4.5% 3.3% 2.3% 1.7% 0.5% 6.2% 4.3% 3.5% 2.5% 2.0%
Run R6 R6 R6 R6 R6 R6 R6 R6 R6 R6 R6 R6 R6	High Range High Range Impactor #2 Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3 2.6 1.6 1.0 0.7 11.4 7.0 4.3 2.6 1.6 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	<u>Collected (ug)</u> 3283 660 857 2050 1240 660 427 3643 603 977 1873 1370 653 380 18940 2120 1277 817 577 393 17663 2377 1313 760 563 447	Concentration (ug/L) 0 0 0 0 3464 2310 1063 332 0 0 1268 0 0 0 1268 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 4588 1000 1250 0 0 0 0 4825 0 1604 3326 1901 0 1604 3326 1901 0 0 38048 2699 1287 0 38048 2699 1287 0 38048 2699 1287 0 33048 3176 1365 0 0 0	Collected (ug) 151 34 43 115 74 35 12 160 44 53 106 65 25 12 1285 96 43 19 10 2 1098 103 45 19 11 16	Cr/Paint (%) 4.6% 5.1% 5.0% 5.6% 6.0% 5.3% 2.7% 4.4% 7.3% 5.5% 5.6% 4.7% 3.8% 3.1% 6.8% 4.5% 3.3% 2.3% 1.7% 0.5% 6.2% 4.3% 3.5% 2.5% 2.0% 1.2%
Run R6 R6 R6 R6 R6 R6 R6 R6 R6 R6 R6 R6 R6	Low Range Low Range High Range High Range Impactor #1 Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3 2.6 1.6 1.0 0.7 11.4 7.0 4.3 2.6 1.6	Collected (ug) 3283 660 857 2050 1240 660 427 3643 603 977 1873 1370 653 380 18940 2120 1277 817 577 393 17663 2377 1313 760 563	Concentration (ug/L) 0 0 0 0 0 3464 2310 1063 332 0 1268 0 0 1268 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 4588 1000 1250 0 0 0 0 0 4825 0 1604 3326 1901 4825 0 1604 3326 1901 0 0 38048 2699 1287 0 38048 2699 1287 0 38048 2699 1287 0 38048 38176 1365 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Collected (ug) 151 34 43 115 74 35 12 160 44 53 106 65 25 12 1285 96 43 19 10 2 1098 103 45 19 103 45 19 103 45 19 103 103 103 103 103 103 103 103	Cr/Paint (%) 4.6% 5.1% 5.0% 5.6% 6.0% 5.3% 2.7% 4.4% 7.3% 5.5% 5.6% 4.7% 3.8% 3.1% 6.8% 4.7% 3.8% 3.1% 6.8% 4.5% 3.3% 2.3% 1.7% 0.5% 6.2% 4.3% 3.5% 2.5% 6.2.5% 6.2.5% 6.2.5% 6.2.5% 6.2.5% 6.2.5% 6.2.5% 6.2.5% 6.2.5% 6.2.5% 6.2.5% 6.2.5% 6.2.5% 6.2.5% 6.3.5% 6.3.5% 6.3.5% 6.3.5% 6.3.5% 6.3.5% 6.3.5% 6.3.5% 6.3.5% 6.3.5% 6.3.5% 6.5% 6

Sample		Particle Size	Mass of Dry Paint	AAS Furnace Cr	AAS Flame Cr	Mass Cr(VI)	Mass
Run	Impactor	(MMAD - um)	Collected (ug)	Concentration (ug/L)	Concentration (ug/L)	Collected (ug)	Cr/Paint (%)
	L						
R7		34.1	3910	0	5880	201	5.1%
R7	High Range Impactor #1	22.2	687	1333	0	44	6.5%
R7		14.5	640	1346	0	28	4.3%
R7	ar di	9.5	1097	0	1464	47	4.3%
R7	- bi de	6.2	737	1435	0	47	6.4%
R7	т£	4.1	403	526	0	17	4.2%
R7		2.7	247	195	0	7	2.7%
R7		34.1	4083	0	7065	228	5.6%
R7	High Range Impactor #2	22.2	530	946	0	21	3.9%
R7	ora	14.5	707	1417	0	47	6.6%
R7	acta	9.5	1093	0	1498	51	4.7%
R7	iệ đ	6.2	733	1331	0	44	6.0%
R7		4.1	457	547	0	18	4.0%
R7		2.7	263	195	0 24132	6 836	2.5% 6.4%
R7		11.4	13013	0		836 47	
R7	₿₩	7.0	910	1473	0	47 24	
R7	ুর্বু	4.3	680 453	720 295	0	24 10	
R7	N N N	2.6	453 300	295 162	0	5	1.8%
R7	Low Range Impactor #1	1.6	300	95	0	3	1.0%
R7 R7		1.0 0.7	280	95 44	0	1	0.5%
R7		11.4	12053	0	19542	668	5.5%
R7		7.0	803	1597	0	51	6.3%
R7	eg₩	4.3	637	923	0	30	4.8%
R7	Low Range Impactor #2	2.6	413	292	0 0	10	
R7	pa n	1.6	320	180	0	6	
R7	<u>ם ב</u>	1.0	283	105	0	2	
R7		0.7	247	64	0	2	
R7	Cart	ridge Filter	18633	0	37372	1247	6.7%
	1	Particle Size	Mass of Dry Paint	AAS Furnace Cr	AAS Flame Cr	Mass Cr(VI)	Mass
Sample Run	Impactor	Particle Size (MMAD - um)	Mass of Dry Paint Collected (ug)	AAS Furnace Cr Concentration (ug/L)	AAS Flame Cr Concentration (ug/L)	Mass Cr(VI) Collected (ug)	Mass Cr/Paint (%)
Sample	Impactor					• •	
Sample Run	Impactor	(MMAD - um)	Collected (ug)	Concentration (ug/L)	Concentration (ug/L)	Collected (ug)	Cr/Paint (%)
Sample Run R8		(MMAD - um) 34.1	Collected (ug) 4670	Concentration (ug/L)	Concentration (ug/L) 12140	Collected (ug)	Cr/Paint (%) 5.3%
Sample Run R8 R8		(MMAD - um) 34.1 22.2	Collected (ug) 4670 677	Concentration (ug/L) 0 0	Concentration (ug/L) 12140 1028	Collected (ug) 247 32	Cr/Paint (%) 5.3% 4.7%
Sample Run R8 R8 R8 R8		(MMAD - um) 34.1 22.2 14.5	Collected (ug) 4670 677 913	Concentration (ug/L) 0 0 0	Concentration (ug/L) 12140 1028 1547	Collected (ug) 247 32 49	Cr/Paint (%) 5.3% 4.7% 5.4%
Sample Run R8 R8 R8 R8 R8 R8 R8		(MMAD - um) 34.1 22.2 14.5 9.5	Collected (ug) 4670 677 913 1563	Concentration (ug/L) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 12140 1028 1547 2794	Collected (ug) 247 32 49 90	5.3% 4.7% 5.4% 5.7%
Sample Run R8 R8 R8 R8 R8 R8 R8 R8		(MMAD - um) 34.1 22.2 14.5 9.5 6.2	Collected (ug) 4670 677 913 1563 1090	Concentration (ug/L) 0 0 0 0 0 0 0 0	Concentration (ug/L) 12140 1028 1547 2794 3647	Collected (ug) 247 32 49 90 114	Cr/Paint (%) 5.3% 4.7% 5.4% 5.7% 10.5%
Sample Run R8 R8 R8 R8 R8 R8 R8 R8 R8 R8	High Range Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1	Collected (ug) 4670 677 913 1563 1090 487	Concentration (ug/L) 0 0 0 0 0 0 1785	Concentration (ug/L) 12140 1028 1547 2794 3647 0	Collected (ug) 247 32 49 90 114 53	Cr/Paint (%) 5.3% 4.7% 5.4% 5.7% 10.5% 10.9%
Sample Run R8 R8 R8 R8 R8 R8 R8 R8 R8 R8 R8		(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7	Collected (ug) 4670 677 913 1563 1090 487 307	Concentration (ug/L) 0 0 0 0 0 0 1785 329	Concentration (ug/L) 12140 1028 1547 2794 3647 0 0	Collected (ug) 247 32 49 90 114 53 11	Cr/Paint (%) 5.3% 4.7% 5.4% 5.7% 10.5% 10.9% 3.5%
Sample Run R8 R8 R8 R8 R8 R8 R8 R8 R8 R8 R8 R8 R8	High Range Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1	Collected (ug) 4670 677 913 1563 1090 487 307 4040	Concentration (ug/L) 0 0 0 0 0 1785 329 0	Concentration (ug/L) 12140 1028 1547 2794 3647 0 0 0 7177	Collected (ug) 247 32 49 90 114 53 11 244	Cr/Paint (%) 5.3% 4.7% 5.4% 5.7% 10.5% 10.9% 3.5% 6.0%
Sample Run R8 R8 R8 R8 R8 R8 R8 R8 R8 R8 R8 R8 R8	High Range Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2	Collected (ug) 4670 913 1563 1090 487 307 4040 490	Concentration (ug/L) 0 0 0 0 0 0 1785 329 0 1317	Concentration (ug/L) 12140 1028 1547 2794 3647 0 0 7177 0	Collected (ug) 247 32 49 90 114 53 11 244 41	Cr/Paint (%) 5.3% 5.4% 5.7% 10.5% 10.9% 3.5% 6.0% 8.4%
Sample Run R8 R8 R8 R8 R8 R8 R8 R8 R8 R8 R8 R8 R8	High Range Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5	Collected (ug) 4670 677 913 1563 1090 487 307 4040 490 807	Concentration (ug/L) 0 0 0 0 0 0 1785 329 0 1317 0	Concentration (ug/L) 12140 1028 1547 2794 3647 0 0 7117 0 1393	Collected (ug) 247 32 49 90 114 53 11 244 41 46	Cr/Paint (%) 5.3% 4.7% 5.4% 5.7% 10.5% 10.9% 3.5% 6.0% 8.4% 5.7%
Sample Run R8 R8 R8 R8 R8 R8 R8 R8 R8 R8 R8 R8 R8	High Range Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5	Collected (ug) 4670 677 913 1563 1090 487 307 4040 490 807 1263	Concentration (ug/L) 0 0 0 0 0 0 0 1785 329 0 1317 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 12140 1028 1547 2794 3647 0 0 7117 0 1393 2380	Collected (ug) 247 32 49 90 114 53 11 244 41 46 72	Cr/Paint (%) 5.3% 4.7% 5.4% 5.7% 10.5% 10.9% 3.5% 6.0% 8.4% 5.7% 5.7%
Sample Run R8 R8 R8 R8 R8 R8 R8 R8 R8 R8 R8 R8 R8	High Range Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 14.5 9.5 6.2	Collected (ug) 4670 677 913 1563 1090 487 307 4040 490 807 1263 973	Concentration (ug/L) 0 0 0 0 0 0 0 1785 329 0 1317 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 12140 1028 1547 2794 3647 0 0 71177 0 1393 2380 1600	Collected (ug) 247 32 49 90 114 53 11 244 41 46 72 51	Cr/Paint (%) 5.3% 4.7% 5.4% 5.7% 10.5% 10.9% 3.5% 6.0% 8.4% 5.7% 5.7% 5.3%
Sample Run R8 R8 R8 R8 R8 R8 R8 R8 R8 R8 R8 R8 R8		(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5	Collected (ug) 4670 677 913 1563 1090 487 307 4040 490 807 1263	Concentration (ug/L) 0 0 0 0 0 0 0 1785 329 0 1317 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 12140 1028 1547 2794 3647 0 0 7117 0 1393 2380	Collected (ug) 247 32 49 90 114 53 11 244 41 46 72	Cr/Paint (%) 5.3% 4.7% 5.4% 5.7% 10.5% 10.9% 3.5% 6.0% 8.4% 5.7% 5.3% 4.9%
Sample Run R8 R8 R8 R8 R8 R8 R8 R8 R8 R8 R8 R8 R8	High Range Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 14.5 9.5 6.2 4.1 2.7 34.1 34.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 9.5 6.2 14.5 9.5 9.5 9.5 9.5 9.5 9.5 9.5 9	Collected (ug) 4670 677 913 1563 1090 487 307 4040 490 807 1263 973 447	Concentration (ug/L) 0 0 0 0 0 0 1785 329 0 1317 0 0 0 663	Concentration (ug/L) 12140 1028 1547 2794 3647 0 0 0 7177 0 1393 2380 1600 0	Collected (ug) 247 32 49 90 114 53 11 244 41 46 72 51 22 9 9	Cr/Paint (%) 5.3% 4.7% 5.4% 5.7% 10.5% 10.9% 3.5% 6.0% 8.4% 5.7% 5.3% 4.9% 4.9% 4.9% 6.9%
Sample Run R8 R8 R8 R8 R8 R8 R8 R8 R8 R8 R8 R8 R8	High Range High Range Impactor #2	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 22.2 14.5 9.5 6.2 14.5 9.5 6.2 4.1 2.7	Collected (ug) 4670 677 913 1563 1090 487 307 4040 490 807 1263 973 973 447 190	Concentration (ug/L) 0 0 0 0 0 0 0 0 0 0 1785 329 0 0 1317 0 0 0 663 290 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 12140 1028 1547 2794 3647 0 0 7177 0 1393 2380 1600 0 0 0 0 0 0 0 0 0 0 0 0	Collected (ug) 247 32 49 90 114 53 11 244 46 72 51 22 9 1444 70	Cr/Paint (%) 5.3% 4.7% 5.4% 5.7% 10.5% 10.9% 3.5% 6.0% 8.4% 5.7% 5.3% 4.9% 4.9% 6.9% 5.1%
Sample Run R8 R8 R8 R8 R8 R8 R8 R8 R8 R8 R8 R8 R8	High Range High Range Impactor #2	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 14.7 14.7	Collected (ug) 4670 677 913 1563 1090 487 307 4040 490 607 1263 973 447 190 21010 1387 720	Concentration (ug/L) 0 0 0 0 0 0 0 0 1785 329 0 1317 0 0 1317 0 0 663 290 0 1299	Concentration (ug/L) 12140 1028 1547 2794 3647 0 0 0 1393 2380 1600 0 0 43956 2176 0	Collected (ug) 247 32 49 90 114 53 11 244 46 72 51 22 9 1444 70 40	Cr/Paint (%) 5.3% 4.7% 5.4% 5.7% 10.5% 10.9% 3.5% 6.0% 8.4% 5.7% 5.3% 4.9% 4.9% 6.9% 5.1% 5.6%
Sample Run R8 R8 R8 R8 R8 R8 R8 R8 R8 R8 R8 R8 R8	High Range High Range Impactor #2	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 11.4 7.0	Collected (ug) 4670 677 913 1563 1090 487 307 4040 490 490 807 1263 973 447 190 21010 1387	Concentration (ug/L) 0 0 0 0 0 0 0 1785 329 0 1317 0 0 0 663 290 0 1299 386	Concentration (ug/L) 12140 1028 1547 2794 3647 0 0 0 1393 2380 1600 0 43956 2176 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Collected (ug) 247 32 49 90 114 53 11 244 46 72 51 22 9 1444 70 0 40 13	Cr/Paint (%) 5.3% 4.7% 5.4% 5.7% 10.5% 10.9% 3.5% 6.0% 8.4% 5.7% 5.3% 4.9% 4.9% 5.1% 5.1% 5.6% 3.4%
Sample Run R8 R8 R8 R8 R8 R8 R8 R8 R8 R8 R8 R8 R8	High Range High Range Impactor #2	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3 2.6 1.6	Collected (ug) 4670 677 913 1563 1090 487 307 4040 490 807 1263 973 973 447 190 21010 1387 720 397 287	Concentration (ug/L) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1785 329 0 0 1317 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 12140 1028 1547 2794 3647 0 0 0 7177 0 1393 2380 1600 0 0 43956 2176 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Collected (ug) 247 32 49 90 114 53 11 244 41 46 72 51 22 9 1444 70 40 13 7	Cr/Paint (%) 5.3% 4.7% 5.4% 5.7% 10.5% 10.9% 3.5% 6.0% 8.4% 5.7% 5.3% 4.9% 4.9% 6.9% 5.1% 5.6% 3.4% 2.4%
Sample Run R8 R8 R8 R8 R8 R8 R8 R8 R8 R8 R8 R8 R8	High Range Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 22.2 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3 2.6 1.6 1.0	Collected (ug) 4670 913 1563 1090 487 307 4040 490 807 1263 973 447 190 21010 1387 720 397 287 193	Concentration (ug/L) 0 0 0 0 0 0 1785 329 0 1317 0 0 1317 0 0 663 290 0 1299 386 213 109	Concentration (ug/L) 12140 1028 1547 2794 3647 0 0 0 7177 0 1393 2380 1600 0 0 43956 2176 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Collected (ug) 247 32 49 90 114 53 11 244 41 46 72 51 22 9 9 1444 70 40 13 7 3	Cr/Paint (%) 5.3% 4.7% 5.4% 5.7% 10.5% 10.9% 3.5% 6.0% 8.4% 5.7% 5.3% 4.9% 4.9% 4.9% 6.9% 5.1% 5.6% 3.4% 2.4% 1.8%
Sample Run R8 R8 R8 R8 R8 R8 R8 R8 R8 R8 R8 R8 R8	High Range High Range Impactor #2	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.1 2.7 11.4 7.0 4.3 2.6 1.6 1.0 0.7	Collected (ug) 4670 677 913 1563 1090 487 307 4040 490 807 1263 973 447 190 21010 1387 720 397 287 287 193 133	Concentration (ug/L) 0 0 0 0 0 1785 329 0 1317 0 0 1317 0 0 663 290 0 1299 386 213 109 55	Concentration (ug/L) 12140 1028 1547 2794 3647 0 0 0 0 1393 2380 1600 0 43956 2176 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Collected (ug) 247 32 49 90 114 53 11 244 41 46 72 51 22 9 9 1444 70 40 13 7 3 2 2	Cr/Paint (%) 5.3% 4.7% 5.4% 5.7% 10.5% 10.9% 3.5% 6.0% 8.4% 5.7% 5.7% 5.7% 5.7% 5.3% 4.9% 4.9% 6.9% 5.1% 5.6% 3.4% 2.4% 1.8% 1.3%
Sample Run R8 R8 R8 R8 R8 R8 R8 R8 R8 R8 R8 R8 R8	Low Range High Range High Range Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 22.2 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3 2.6 1.6 1.0	Collected (ug) 4670 677 913 1563 1090 487 307 4040 490 807 1263 973 447 190 21010 1387 720 397 287 193 133	Concentration (ug/L) 0 0 0 0 0 0 1785 329 0 0 1317 0 0 1317 0 0 663 290 0 1299 386 213 109 55 0	Concentration (ug/L) 12140 1028 1547 2794 3647 0 0 0 1393 2380 1600 0 43956 2176 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Collected (ug) 247 32 49 90 114 53 11 244 41 46 72 51 22 9 1444 70 40 13 7 3 22 1297	Cr/Paint (%) 5.3% 4.7% 5.4% 5.7% 10.5% 10.9% 3.5% 6.0% 8.4% 5.7% 5.7% 5.3% 4.9% 4.9% 6.9% 5.1% 5.6% 3.4% 2.4% 1.8% 1.3% 6.8%
Sample Run R8 R8 R8 R8 R8 R8 R8 R8 R8 R8 R8 R8 R8	Low Range High Range High Range Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3 2.6 1.6 1.0 0.7 11.4 7.0	Collected (ug) 4670 677 913 1563 1090 487 307 4040 490 807 1263 973 447 190 21010 1387 720 397 287 193 133 19053 1343	Concentration (ug/L) 0 0 0 0 0 0 0 1785 329 0 0 1317 0 0 0 663 290 0 0 1299 386 213 109 55 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 12140 1028 1547 2794 3647 0 0 0 1393 2380 1600 0 43956 2176 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Collected (ug) 247 32 49 90 114 53 11 244 46 72 51 22 9 1444 70 40 13 7 3 2 2 1297 65	Cr/Paint (%) 5.3% 4.7% 5.4% 5.7% 10.5% 10.9% 3.5% 6.0% 8.4% 5.7% 5.3% 4.9% 4.9% 4.9% 5.7% 5.3% 4.9% 4.9% 4.9% 5.6% 3.4% 2.4% 1.8% 6.8% 4.8%
Sample Run R8 R8 R8 R8 R8 R8 R8 R8 R8 R8 R8 R8 R8	Low Range High Range High Range Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3 2.6 1.6 1.0 0.7 11.4 7.0 4.3	Collected (ug) 4670 677 913 1563 1090 487 307 4040 490 807 1263 973 447 190 21010 1387 720 397 287 193 133 19053 1343 783	Concentration (ug/L) 0 0 0 0 0 0 0 0 0 0 0 1785 329 0 0 1317 0 0 1317 0 0 0 0 663 290 0 1299 386 213 109 55 0 0 0 1173	Concentration (ug/L) 12140 1028 1547 2794 3647 0 0 0 7177 0 1393 2380 1600 0 0 43956 2176 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Collected (ug) 247 32 49 90 114 53 11 244 41 46 72 51 22 9 1444 70 40 13 7 3 2 22 9 1444 70 40 9 1445 51 22 9 1444 70 40 9 14 11 24 72 9 14 14 11 24 72 9 14 14 12 12 12 12 12 12 12 12 12 12	Cr/Paint (%) 5.3% 4.7% 5.4% 5.7% 10.5% 10.9% 3.5% 6.0% 8.4% 5.7% 5.7% 5.3% 4.9% 4.9% 4.9% 4.9% 4.9% 4.9% 4.9% 4.9
Sample Run R8 R8 R8 R8 R8 R8 R8 R8 R8 R8 R8 R8 R8	Low Range High Range High Range Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3 2.6 1.6 1.0 0.7 11.4 7.0 4.3 2.6 1.6 1.0 0.7 11.4 7.0 4.3 2.6 1.6 1.0 0.7 1.1 2.6 1.6 1.0 0.7 1.1 2.7 1.1 3.1 2.6 1.6 1.0 0.7 1.1 2.6 1.6 1.0 0.7 1.1 3.2 2.6 1.6 1.0 0.7 1.1 2.6 1.6 1.0 0.7 1.1 3.1 2.6 1.6 1.0 0.7 1.1 2.6 1.6 1.0 0.7 1.1 2.6 1.6 1.0 0.7 1.1 2.6 1.6 1.0 0.7 1.1 2.6 1.6 1.0 0.7 1.1 4.3 2.6 1.6 1.0 2.6 1.6 1.0 2.6 1.6 1.0 2.6 1.6 1.0 2.6 1.6 1.0 2.6 1.6 1.0 2.6 1.6 1.0 2.6 1.6 1.0 2.6 1.6 1.0 2.6 1.6 1.0 2.6 1.6 1.0 2.6 1.6 1.0 2.6 1.6 1.0 2.6 1.6 1.0 2.6 1.6 1.0 2.6 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5	Collected (ug) 4670 677 913 1563 1090 487 307 4040 490 807 1263 973 4040 1263 973 447 190 21010 1387 720 397 287 193 133 19053 1343 783 347	Concentration (ug/L) 0 0 0 0 0 0 0 1785 329 0 1317 0 0 1317 0 0 0 1317 0 0 0 1317 0 0 0 1299 386 213 109 55 0 0 1173 335	Concentration (ug/L) 12140 1028 1547 2794 3647 0 0 0 7177 0 1393 2380 1600 0 0 43956 2176 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Collected (ug) 247 32 49 90 114 53 11 244 41 46 72 51 22 9 1444 70 40 13 7 3 2 1297 65 39 11	Cr/Paint (%) 5.3% 4.7% 5.4% 5.7% 10.5% 10.9% 6.0% 8.4% 5.7% 5.3% 4.9% 4.9% 6.9% 5.1% 5.6% 3.4% 2.4% 1.8% 1.3% 6.8% 4.8% 5.0% 3.2%
Sample Run R8 R8 R8 R8 R8 R8 R8 R8 R8 R8 R8 R8 R8	Low Range High Range High Range Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3 2.6 1.6 1.6 1.6 1.6 1.6 1.6 1.6 1	Collected (ug) 4670 677 913 1563 1090 487 307 4040 490 807 1263 973 447 190 21010 1387 720 397 287 193 133 19053 1343 783 347	Concentration (ug/L) 0 0 0 0 0 1785 329 0 1317 0 0 1317 0 0 0 1317 0 0 0 1317 0 0 0 1299 386 213 109 55 0 0 1173 335 187	Concentration (ug/L) 12140 1028 1547 2794 3647 0 0 0 7177 0 1393 2380 1600 0 0 43956 2176 0 0 0 0 0 43956 2176 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Collected (ug) 247 32 49 90 114 53 11 244 41 46 72 51 22 9 1444 70 40 13 7 3 2 1297 65 39 11 6	Cr/Paint (%) 5.3% 4.7% 5.4% 5.7% 10.5% 10.9% 3.5% 6.0% 5.7% 5.7% 5.7% 5.7% 5.7% 5.7% 5.7% 5.7
Sample Run R8 R8 R8 R8 R8 R8 R8 R8 R8 R8 R8 R8 R8	High Range High Range Impactor #2	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3 2.6 1.6 1.0 0.7 11.4 7.0 4.3 2.6 1.6 1.0 1.0	Collected (ug) 4670 677 913 1563 1090 487 307 4040 490 807 1263 973 447 190 21010 1387 720 397 287 193 133 19053 1343 783 347 237	Concentration (ug/L) 0 0 0 0 0 0 0 0 0 0 1785 329 0 0 1317 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 12140 1028 1547 2794 3647 0 0 0 0 1393 2380 1600 0 0 43956 2176 0 0 0 0 43956 2176 0 0 0 0 0 0 43956 2176 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Collected (ug) 247 32 49 90 114 53 11 244 41 46 72 51 22 9 1444 70 40 13 7 3 2 1297 65 39 11 6 33	Cr/Paint (%) 5.3% 4.7% 5.4% 5.7% 10.5% 10.9% 3.5% 6.0% 8.4% 5.7% 5.7% 5.7% 5.7% 5.3% 4.9% 4.9% 6.9% 5.1% 5.6% 3.4% 2.4% 1.8% 5.6% 3.4% 2.4% 1.8% 5.0% 3.2% 2.7% 1.8%
Sample Run R8 R8 R8 R8 R8 R8 R8 R8 R8 R8 R8 R8 R8	Low Range Low Range High Range High Range Impactor #2 Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3 2.6 1.6 1.6 1.6 1.6 1.6 1.6 1.6 1	Collected (ug) 4670 677 913 1563 1090 487 307 4040 490 807 1263 973 447 190 21010 1387 720 397 287 193 133 19053 1343 783 347	Concentration (ug/L) 0 0 0 0 0 1785 329 0 1317 0 0 1317 0 0 0 1317 0 0 0 1317 0 0 0 1299 386 213 109 55 0 0 1173 335 187	Concentration (ug/L) 12140 1028 1547 2794 3647 0 0 0 7177 0 1393 2380 1600 0 0 43956 2176 0 0 0 0 0 43956 2176 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Collected (ug) 247 32 49 90 114 53 11 244 41 46 72 51 22 9 1444 70 40 13 7 3 2 1297 65 39 11 6	Cr/Paint (%) 5.3% 4.7% 5.4% 5.7% 10.5% 10.9% 3.5% 6.0% 8.4% 5.7% 5.7% 5.7% 5.7% 5.3% 4.9% 4.9% 6.9% 5.1% 5.6% 3.4% 2.4% 1.3% 6.8% 4.8% 5.0% 3.2% 4.8% 5.0% 3.2% 1.8% 1.8%

Sample	Impactor	Particle Size	Mass of Dry Paint	AAS Furnace Cr	AAS Flame Cr	Mass Cr(VI)	Mass
Run	Impactor	(MMAD - um)	Collected (ug)	Concentration (ug/L)	Concentration (ug/L)	Collected (ug)	Cr/Paint (%)
R9		34.1	7200	0	17134	546	7.6%
R9	a –	22.2	803	0	1813	46	5.7%
R9		14.5	1070	0	2181	68	6.3%
R9	High Range Impactor #1	9.5	1850	0	4420	140	7.5%
R9	d d	6.2	1190	0	2472	76	6.4%
R9	포트	4.1	540	1110	0	28	5.1%
R9		2.7	293	181	0	5	1.8%
R9		34.1	6180	0	14785	470	7.6%
R9	₿å	22.2	660	0	1183	36 70	5.5%
R9 R9	to a	14.5 9.5	1053 1847	0	235 3 4681	144	6.6% 7.8%
R9	High Range Impactor #2	6.2	1000	0	2069	64	6.4%
R9	, <u>, , , , , , , , , , , , , , , , , , </u>	4.1	493	893	0	28	5.7%
R9		2.7	227	269	0	5	2.3%
R9		11.4	25667	0	74826	2562	10.0%
R9	er €	7.0	2037	0	3660	121	6.0%
R9	Sr≇	4.3	1053	0	119 1	38	3.6%
R9	act R	2.6	520	387	0	12	2.4%
R9	Low Range Impactor #1	1.6	467	56	0	2	0.4%
R9		1.0	363 327	15 9	0	0	0.1% 0.1%
		0.7	23150	9	62768	2070	8.9%
R9	∩ N	7.0	1837	0	4227	133	7.3%
R9	bor#	4.3	977	0	1527	47	4.8%
R9	Low Range Impactor #2	2.6	433	395	0	. 12	2.7%
R9	≷ ⊑	1.6	337	55	0	2	0.5%
R9	75	1.0	270	19	0	1	0.2%
R9		0.7	210	9	0	0	0.1%
R9	Carti	ridge Filter	28903	0	80028	2528	8.7%
Sample		Particle Size	Mass of Dry Paint	AAS Eurnace Cr	AAS Flame Cr	Mass Cr(VI)	Mass
Sample Run	Impactor	Particle Size (MMAD - um)	Mass of Dry Paint Collected (ug)	AAS Furnace Cr Concentration (ug/L)	AAS Flame Cr Concentration (ug/L)	Mass Cr(VI) Collected (ug)	Mass Cr/Paint (%)
Sample Run	Impactor	Particle Size (MMAD - um)	Mass of Dry Paint Collected (ug)	AAS Furnace Cr Concentration (ug/L)			
Run	Impactor	(MMAD - um)	Collected (ug)	Concentration (ug/L)	Concentration (ug/L)	Collected (ug)	Cr/Paint (%)
Run		(MMAD - um) 34.1	Collected (ug) 4130	Concentration (ug/L)	Concentration (ug/L) 6891	Collected (ug)	Cr/Paint (%) 5.4%
Run R10 R10		(MMAD - um) 34.1 22.2	Collected (ug) 4130 610	Concentration (ug/L) 0 1218	Concentration (ug/L) 6891 0	Collected (ug) 222 39	Cr/Paint (%) 5.4% 6.3%
Run R10 R10 R10		(MMAD - um) 34.1 22.2 14.5	Collected (ug) 4130 610 743	Concentration (ug/L) 0 1218 1443	Concentration (ug/L) 6891 0 0	Collected (ug) 222 39 47	Cr/Paint (%) 5.4% 6.3% 6.3%
Run R10 R10 R10 R10 R10		(MMAD - um) 34.1 22.2 14.5 9.5	Collected (ug) 4130 610 743 1350	Concentration (ug/L) 0 1218 1443 0	Concentration (ug/L) 6891 0 0 2027	Collected (ug) 222 39 47 67	Cr/Paint (%) 5.4% 6.3% 6.3% 4.9%
Run R10 R10 R10 R10 R10 R10		(MMAD - um) 34.1 22.2 14.5 9.5 6.2	Collected (ug) 4130 610 743	Concentration (ug/L) 0 1218 1443	Concentration (ug/L) 6891 0 0	Collected (ug) 222 39 47	Cr/Paint (%) 5.4% 6.3% 6.3%
Run R10 R10 R10 R10 R10	High Range Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5	Collected (ug) 4130 610 743 1350 890	Concentration (ug/L) 0 1218 1443 0 0 465 257	Concentration (ug/L) 6891 0 0 2027 1058 0 0 0	Collected (ug) 222 39 47 67 34 15 8	Cr/Paint (%) 5.4% 6.3% 6.3% 4.9% 3.9% 3.7% 2.9%
Run R10 R10 R10 R10 R10 R10 R10	High Range Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1	Collected (ug) 4130 610 743 1350 890 400 280 3693	Concentration (ug/L) 0 1218 1443 0 0 0 465 257 0	Concentration (ug/L) 6891 0 0 2027 1058 0 0 5959	Collected (ug) 222 39 47 67 34 15 8 8 187	Cr/Paint (%) 5.4% 6.3% 6.3% 4.9% 3.9% 3.7% 2.9% 5.1%
R10 R10 R10 R10 R10 R10 R10 R10 R10 R10	High Range Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2	Collected (ug) 4130 610 743 1350 890 400 280 3693 507	Concentration (ug/L) 0 1218 1443 0 0 465 257 0 779	Concentration (ug/L) 6891 0 0 2027 1058 0 0 5959 0	Collected (ug) 222 39 47 67 34 15 8 187 25	Cr/Paint (%) 5.4% 6.3% 6.3% 4.9% 3.9% 3.7% 2.9% 5.1% 4.8%
R10 R10 R10 R10 R10 R10 R10 R10 R10 R10	High Range Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5	Collected (ug) 4130 610 743 1350 890 400 280 3693 507 773	Concentration (ug/L) 0 1218 1443 0 0 465 257 0 779 0	Concentration (ug/L) 6891 0 0 2027 1058 0 0 5959 0 1201	Collected (ug) 222 39 47 67 34 15 8 187 25 38	Cr/Paint (%) 5.4% 6.3% 6.3% 4.9% 3.9% 3.7% 2.9% 5.1% 4.8% 5.0%
R10 R10 R10 R10 R10 R10 R10 R10 R10 R10	High Range Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5	Collected (ug) 4130 610 743 1350 890 400 280 3693 507 773 1163	Concentration (ug/L) 0 1218 1443 0 0 465 257 0 779 0 779 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 6891 0 0 2027 1058 0 0 5959 0 1201 1783	Collected (ug) 222 39 47 67 34 15 8 187 25 38 59	Cr/Paint (%) 5.4% 6.3% 6.3% 4.9% 3.9% 3.7% 2.9% 5.1% 4.8% 5.0% 5.0%
R10 R10 R10 R10 R10 R10 R10 R10 R10 R10	High Range Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 14.5 9.5 6.2	Collected (ug) 4130 610 743 1350 890 400 280 3693 507 773 1163 870	Concentration (ug/L) 0 1218 1443 0 0 465 257 0 779 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 6891 0 0 2027 1058 0 0 5959 0 1201 1783 1237	Collected (ug) 222 39 47 67 34 15 8 187 25 38 59 38	Cr/Paint (%) 5.4% 6.3% 6.3% 4.9% 3.9% 3.7% 2.9% 5.1% 4.8% 5.0% 5.0% 4.4%
R10 R10 R10 R10 R10 R10 R10 R10 R10 R10		(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 14.5 9.5 6.2 4.1 2.7 34.1 34.5 9.5 6.2 34.1 34.5 9.5 6.2 34.1 34.1 2.7 34.1 34.5 9.5 6.2 34.1 2.7 34.1 34.5 9.5 6.2 34.1 2.7 34.1 34.5 9.5 6.2 34.1 34.5 9.5 6.2 4.1 34.5 9.5 6.2 4.1 34.1 34.5 9.5 6.2 4.1 34.1 34.5 9.5 6.2 4.1	Collected (ug) 4130 610 743 1350 890 400 280 3693 507 773 1163 870 430	Concentration (ug/L) 0 1218 1443 0 0 465 257 0 779 0 779 0 0 469	Concentration (ug/L) 6891 0 0 2027 1058 0 0 5959 0 1201 1783	Collected (ug) 222 39 47 67 34 15 8 187 25 38 59 38 59 38 59	Cr/Paint (%) 5.4% 6.3% 6.3% 4.9% 3.9% 3.7% 2.9% 5.1% 4.8% 5.0% 5.0% 4.4% 3.6%
Run R10 R10 R10 R10 R10 R10 R10 R10 R10 R10	High Range Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.5 6.2 4.1 2.7	Collected (ug) 4130 610 743 1350 890 400 280 3693 507 773 1163 870 430 430 287	Concentration (ug/L) 0 1218 1443 0 0 465 257 0 779 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 6891 0 0 2027 1058 0 2027 1058 0 2059 0 1201 1783 1237 0	Collected (ug) 222 39 47 67 34 15 8 187 25 38 59 38 59 38 16 7	Cr/Paint (%) 5.4% 6.3% 6.3% 4.9% 3.9% 3.7% 2.9% 5.1% 4.8% 5.0% 5.0% 4.4% 3.6%
R10 R10 R10 R10 R10 R10 R10 R10 R10 R10	High Range High Range Impactor #2 Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 11.4 7.0	Collected (ug) 4130 610 743 1350 890 400 280 3693 507 773 1163 870 430	Concentration (ug/L) 0 1218 1443 0 465 257 0 779 0 779 0 469 208	Concentration (ug/L) 6891 0 0 2027 1058 0 0 5959 0 1201 1783 1237 0 0 40320 1173	Collected (ug) 222 39 47 67 34 15 8 187 25 38 59 38 16 7 7 1253 38	Cr/Paint (%) 5.4% 6.3% 6.3% 4.9% 3.9% 3.7% 2.9% 5.1% 4.8% 5.0% 5.0% 5.0% 4.4% 3.6% 2.3% 6.7% 4.1%
Run R10 R10 R10 R10 R10 R10 R10 R10 R10 R10	High Range High Range Impactor #2 Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 1.4 7.0 1.4 7.0 4.3	Collected (ug) 4130 610 743 1350 890 400 280 3693 507 773 1163 870 430 287 18783 927 620	Concentration (ug/L) 0 1218 1443 0 0 465 257 0 779 0 779 0 0 469 208 0 0 0 864	Concentration (ug/L) 6891 0 0 2027 1058 0 0 5959 0 1201 1783 1237 0 40320 1173 0	Collected (ug) 222 39 47 67 34 15 8 187 25 38 187 25 38 59 38 16 7 1253 38 26	Cr/Paint (%) 5.4% 6.3% 6.3% 4.9% 3.9% 3.7% 2.9% 5.1% 4.8% 5.0% 5.0% 4.4% 3.6% 2.3% 6.7% 4.1% 4.2%
Run R10 R10 R10 R10 R10 R10 R10 R10 R10 R10	High Range High Range Impactor #2 Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 14.3 2.6	Collected (ug) 4130 610 743 1350 890 400 280 3693 507 773 1163 870 430 287 18783 927 620 440	Concentration (ug/L) 0 1218 1443 0 0 0 465 257 0 779 0 779 0 0 469 208 0 0 864 410	Concentration (ug/L) 6891 0 0 2027 1058 0 0 5959 0 0 1201 1783 1237 0 0 40320 1173 0 0 0 0 0 0 0 0 0 0 0 0 0	Collected (ug) 222 39 47 67 34 15 8 187 25 38 187 25 38 59 38 16 7 1253 38 16 7 1253 38 16 7	Cr/Paint (%) 5.4% 6.3% 6.3% 4.9% 3.9% 3.7% 2.9% 5.1% 4.8% 5.0% 5.0% 5.0% 4.4% 3.6% 2.3% 6.7% 4.1% 4.2% 3.0%
Run R10 R10 R10 R10 R10 R10 R10 R10 R10 R10	High Range High Range Impactor #2 Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 11.4 7.0 1.4 7.0 1.4 7.0 1.1 2.6 1.1 2.7 1.1 1.2 1.5 9.5 6.2 4.1 2.7 1.1 1.4 7.0 1.6 1.6 1.6 1.6	Collected (ug) 4130 610 743 1350 890 400 280 3693 507 773 1163 870 430 287 18783 927 620 440	Concentration (ug/L) 0 1218 1443 0 465 257 0 0 779 0 0 779 0 0 469 208 0 0 864 410 232	Concentration (ug/L) 6891 6891 0 0 0 2027 1058 0 0 0 5959 0 1201 1783 1237 0 0 40320 1173 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Collected (ug) 222 39 47 67 34 15 8 187 25 38 59 38 59 38 16 7 7 1253 38 26 37	Cr/Paint (%) 5.4% 6.3% 6.3% 4.9% 3.9% 3.7% 2.9% 5.1% 4.8% 5.0% 5.0% 5.0% 5.0% 5.0% 4.4% 3.6% 2.3% 6.7% 4.1% 4.2% 3.0% 2.0%
Run R10 R10 R10 R10 R10 R10 R10 R10 R10 R10	High Range Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 22.2 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3 2.6 1.6 1.0	Collected (ug) 4130 610 743 1350 890 400 280 3693 507 773 1163 870 430 287 18783 927 620 440 353 277	Concentration (ug/L) 0 1218 1443 0 465 257 0 779 0 779 0 0 779 0 0 469 208 0 0 864 410 232 114	Concentration (ug/L) 6891 0 0 0 2027 1058 0 0 5959 0 1201 1783 1237 0 0 40320 1173 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Collected (ug) 222 39 47 67 34 15 8 187 25 38 59 38 59 38 16 7 7 1253 38 26 13 7 7 4	Cr/Paint (%) 5.4% 6.3% 6.3% 4.9% 3.9% 3.7% 2.9% 5.1% 4.8% 5.0% 5.0% 5.0% 5.0% 5.0% 4.4% 3.6% 2.3% 6.7% 4.1% 4.2% 3.0% 2.0% 1.3%
Run R10 R10 R10 R10 R10 R10 R10 R10 R10 R10	High Range High Range Impactor #2 Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 14.5 9.5 6.2 4.1 2.7 34.1 2.7 34.1 2.7 34.1 2.7 34.1 2.2 14.5 9.5 6.2 14.1 2.7 11.4 7.0 1.6 1.6 1.0 0.7	Collected (ug) 4130 610 743 1350 890 400 280 3693 507 773 1163 870 430 287 18783 927 620 440 353 277 250	Concentration (ug/L) 0 1218 1443 0 0 465 257 0 779 0 779 0 0 469 208 0 0 864 410 232 114 61	Concentration (ug/L) 6891 0 0 2027 1058 0 0 5959 0 1201 1783 1237 0 0 40320 1173 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Collected (ug) 222 39 47 67 34 15 8 187 25 38 59 38 16 7 7 1253 38 26 13 7 4 25 38 4 26 13 7	Cr/Paint (%) 5.4% 6.3% 6.3% 4.9% 3.9% 3.7% 2.9% 5.1% 4.8% 5.0% 5.0% 4.4% 3.6% 6.7% 4.1% 4.2% 3.0% 1.3% 0.7%
Run R10 R10 R10 R10 R10 R10 R10 R10 R10 R10	Low Range High Range High Range Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3 2.6 1.6 1.0 0.7 11.4	Collected (ug) 4130 610 743 1350 890 400 280 3693 507 773 1163 870 430 287 18783 927 620 440 353 277	Concentration (ug/L) 0 1218 1443 0 0 465 257 0 0 779 0 0 469 208 0 0 0 6 64 410 232 114 61 0	Concentration (ug/L) 6891 0 0 2027 1058 0 0 5959 0 1201 1783 1237 0 0 40320 1173 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Collected (ug) 222 39 47 67 34 15 8 187 25 38 59 38 59 38 16 7 7 1253 38 26 13 7 7 4	Cr/Paint (%) 5.4% 6.3% 6.3% 4.9% 3.9% 3.7% 2.9% 5.1% 4.8% 5.0% 5.0% 5.0% 5.0% 4.4% 3.6% 4.4% 3.6% 4.1% 4.2% 3.0% 1.3% 0.7%
Run R10 R10 R10 R10 R10 R10 R10 R10	Low Range High Range High Range Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3 2.6 1.6 1.0 0.7 11.4 7.0	Collected (ug) 4130 610 743 1350 890 400 280 3693 507 773 1163 870 430 287 18783 927 620 440 353 277 250	Concentration (ug/L) 0 1218 1443 0 0 465 257 0 0 779 0 0 469 208 0 0 0 6 64 410 232 114 61 0	Concentration (ug/L) 6891 0 2027 1058 0 0 2027 1058 0 0 1201 1783 1237 0 40320 1173 0 40320 1173 0 0 30364 Sample Lost	Collected (ug) 222 39 47 67 34 15 8 187 25 38 16 7 1253 38 26 13 7 4 2 1022	Cr/Paint (%) 5.4% 6.3% 6.3% 4.9% 3.9% 3.7% 2.9% 5.1% 4.8% 5.0% 5.0% 4.4% 3.6% 2.3% 6.7% 4.1% 4.2% 3.0% 2.0% 1.3% 0.7% 6.5%
Run R10 R10 R10 R10 R10 R10 R10 R10 R10 R10	Low Range High Range High Range Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3 2.6 1.6 1.0 0.7 11.4 7.0 4.3	Collected (ug) 4130 610 743 1350 890 400 280 3693 507 773 1163 870 430 287 18783 927 620 440 353 277 250	Concentration (ug/L) 0 0 1218 1443 0 0 465 257 0 0 779 0 0 0 469 208 0 0 0 469 208 0 0 0 864 410 232 114 61 0 0 5	Concentration (ug/L) 6891 0 0 2027 1058 0 0 5959 0 1201 1783 1237 0 0 40320 1173 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Collected (ug) 222 39 47 67 34 15 8 187 25 38 59 38 16 7 7 1253 38 26 13 7 4 25 38 4 26 13 7	Cr/Paint (%) 5.4% 6.3% 6.3% 4.9% 3.9% 3.7% 2.9% 5.1% 4.8% 5.0% 5.0% 5.0% 5.0% 4.4% 3.6% 2.3% 6.7% 4.1% 4.2% 0.7% 6.5% 4.1%
Run R10 R10 R10 R10 R10 R10 R10 R10	Low Range High Range High Range Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3 2.6 1.6 1.0 0.7 11.4 7.0	Collected (ug) 4130 610 743 1350 890 400 280 3693 507 773 1163 870 430 287 18783 927 620 440 353 277 250 15720 527 363 303	Concentration (ug/L) 0 0 1218 1443 0 0 465 257 0 779 0 0 779 0 0 0 469 208 0 0 0 864 410 232 114 61 0 0 5 653 404 181	Concentration (ug/L) 6891 0 2027 1058 0 2027 1058 0 2027 1058 0 2027 1058 0 2027 1058 0 2027 1058 0 2027 1058 0 2027 1058 0 2027 1058 0 2027 1058 0 2027 1058 0 2027 1058 0 2027 1058 0 2027 1058 0 0 2027 1058 0 0 2027 1058 0 0 1201 1783 1237 0 0 40320 1173 0 0 40320 0 0 0 40320 0 0 0 0 30364 Sample Lost 0 0 0 0 0 0 0 0 0	Collected (ug) 222 39 47 67 34 15 8 187 25 38 59 38 59 38 16 7 1253 38 26 13 7 7 4 22 1022 22	Cr/Paint (%) 5.4% 6.3% 6.3% 4.9% 3.9% 3.7% 2.9% 5.1% 4.8% 5.0% 5.0% 5.0% 5.0% 5.0% 5.0% 4.4% 3.6% 2.3% 6.7% 4.1% 3.0% 2.0% 1.3% 0.7% 6.5% 4.1% 3.5% 2.4%
Run R10 R10 R10 R10 R10 R10 R10 R10 R10 R10	High Range High Range Impactor #2 Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3 2.6 1.6 1.0 0.7 11.4 7.0 4.3 2.6 1.6 1.0	Collected (ug) 4130 610 743 1350 890 400 280 3693 507 773 1163 870 430 287 18783 927 620 440 353 277 250 15720 527 363 303	Concentration (ug/L) 0 0 1218 1443 0 0 465 257 0 0 779 0 0 469 208 0 0 0 864 410 232 114 61 0 \$ 613 0 \$ 653 404 181 109	Concentration (ug/L) 6891 0 2027 1058 0 0 5959 0 1201 1783 1237 0 40320 1173 0 0 40320 1173 0 0 30364 Sample Lost 0 0 0 0 0 0 0 0 0	Collected (ug) 222 39 47 67 34 15 8 187 25 38 59 38 16 7 1253 38 26 13 7 1253 38 26 13 7 1223 38 26 13 7 1223 38 26 13 7 22 1022 22 1022 7 3	Cr/Paint (%) 5.4% 6.3% 6.3% 4.9% 3.9% 3.7% 2.9% 5.1% 4.8% 5.0% 5.0% 5.0% 5.0% 4.4% 3.6% 2.0% 4.1% 4.2% 3.0% 2.0% 1.3% 0.7% 6.5% 4.1% 3.5% 2.4% 1.3%
Run R10 R10 R10 R10 R10 R10 R10 R10 R10 R10	Low Range Low Range High Range High Range Impactor #2 Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3 2.6 1.6 1.6 1.6 1.6 1.6 1.6 1.6 1	Collected (ug) 4130 610 743 1350 890 400 280 3693 507 773 1163 870 430 287 18783 927 620 440 353 277 250 15720 527 363 303	Concentration (ug/L) 0 0 1218 1443 0 0 465 257 0 779 0 0 779 0 0 0 469 208 0 0 0 864 410 232 114 61 0 0 5 653 404 181	Concentration (ug/L) 6891 0 2027 1058 0 2027 1058 0 2027 1058 0 2027 1058 0 0 2027 1058 0 0 2027 1058 0 0 2027 1058 0 0 2027 1058 0 0 2027 1058 0 0 2027 1058 0 0 2027 1058 0 0 2027 1058 0 0 2027 1058 0 0 2027 1058 0 0 2027 1058 0 0 1201 1783 1237 0 0 0 2020 1173 0 0 0 2020 1173 0 0 0 2020 1173 0 0 0 2020 1173 0 0 0 2020 1173 0 0 2020 1173 0 0 0 2020 1173 0 0 0 0 0 0 0 0 0	Collected (ug) 222 39 47 67 34 15 8 187 25 38 59 38 6 16 7 1253 38 26 13 7 4 2 1022 22 13 7 7	Cr/Paint (%) 5.4% 6.3% 6.3% 4.9% 3.9% 3.7% 2.9% 5.1% 4.8% 5.0% 5.0% 5.0% 4.4% 3.6% 2.3% 6.7% 4.1% 4.2% 3.0% 2.0% 1.3% 0.7% 6.5% 4.1% 3.5% 1.3% 0.8%

Sample		Particle Size	Mass of Dry Paint	AAS Furnace Cr	AAS Flame Cr	Mass Cr(VI)	Mass
Run	Impactor	(MMAD - um)	Collected (ug)	Concentration (ug/L)	Concentration (ug/L)	Collected (ug)	Cr/Paint (%)
D 44		34.1	8363	0	11683	385	4.6%
R11 R11	0-	22.2	1280	0	2014	64	
R11	High Range Impactor #1	14.5	1517	0 0	2507	77	5.1%
R11	R S S	9.5	2140	0	3610	108	5.1%
R11	Чg	6.2	1547	0	2011	66	4.2%
R11	ΞE	4.1	687	728	467	23	3.3%
R11		2.7	483	307	395	10	2.0%
R11		34.1 22.2	7880 930	0 0	11966 1104	384 36	4.9% 3.8%
R11 R11	High Range Impactor #2	22.2 14.5	930 1373	0	2115	66	4.8%
R11	5 a	9.5	2227	õ	3611	116	5.2%
R11	- d d	6.2	1507	0	2084	70	4.6%
R11	ΞĒ	4.1	757	748	566	25	3.3%
R11		2.7	513	325	0	11	2.1%
R11		11.4	28500	0	0	0	0.0%
R11	#ge	7.0	2100	0	3141 1121	102 35	4.9% 3.1%
R11 R11	tor a	4.3 2.6	1113 773	644	52	20	2.5%
R11 R11	pac Pac	2.6 1.6	520	229	0	20	1.5%
R11	Low Range Impactor #1	1.0	417	125	0	4	0.9%
R11		0.7	383	62	0	2	0.5%
R11		11.4	26627	68	0	2	0.0%
R11	Low Range Impactor #2	7.0	2083	0 229	43 182	1 7	0.1% 0.7%
R11	to a	4.3 2.6	1010 617	229	0	0	0.7%
R11 R11	DaC DaC	1.6	497	0	0	0	0.0%
R11	<u>ה</u> ב	1.0	390	õ	0	Ō	0.0%
R11		0.7	330	0	4603	161	48.7%
D44	Cart	ridge Filter	57690	0	546	17	0.0%
R11	Caru	nuge i inei			0.10		0.070
l							
Sample	Impactor	Particle Size	Mass of Dry Paint	AAS Furnace Cr	AAS Flame Cr	Mass Cr(VI)	Mass
l							
Sample		Particle Size (MMAD - um)	Mass of Dry Paint Collected (ug)	AAS Furnace Cr Concentration (ug/L)	AAS Flame Cr Concentration (ug/L)	Mass Cr(VI) Collected (ug)	Mass Cr/Paint (%)
Sample Run R12	Impactor	Particle Size (MMAD - um) 34.1	Mass of Dry Paint Collected (ug) 6467	AAS Furnace Cr Concentration (ug/L)	AAS Flame Cr Concentration (ug/L) 10148	Mass Cr(VI) Collected (ug) 320	Mass Cr/Paint (%) 4.9%
Sample Run R12 R12 R12	Impactor	Particle Size (MMAD - um) 34.1 22.2	Mass of Dry Paint Collected (ug) 6467 830	AAS Furnace Cr Concentration (ug/L) 0 0	AAS Flame Cr Concentration (ug/L) 10148 1192	Mass Cr(VI) Collected (ug) 320 37	Mass Cr/Paint (%) 4.9% 4.4%
Run Run R12 R12 R12 R12 R12	Impactor	Particle Size (MMAD - um) 34.1 22.2 14.5	Mass of Dry Paint Collected (ug) 6467 830 1343	AAS Furnace Cr Concentration (ug/L) 0 0 0	AAS Flame Cr Concentration (ug/L) 10148 1192 2137	Mass Cr(VI) Collected (ug) 320 37 65	Mass Cr/Paint (%) 4.9% 4.4% 4.8%
R12 R12 R12 R12 R12 R12 R12	Impactor	Particle Size (MMAD - um) 34.1 22.2 14.5 9.5	Mass of Dry Paint Collected (ug) 6467 830 1343 1317	AAS Furnace Cr Concentration (ug/L) 0 0 0 0 0	AAS Flame Cr Concentration (ug/L) 10148 1192 2137 1830	Mass Cr(VI) Collected (ug) 320 37 65 63	Mass Cr/Paint (%) 4.9% 4.4% 4.8% 4.8%
Run Run R12 R12 R12 R12 R12		Particle Size (MMAD - um) 34.1 22.2 14.5	Mass of Dry Paint Collected (ug) 6467 830 1343	AAS Furnace Cr Concentration (ug/L) 0 0 0	AAS Flame Cr Concentration (ug/L) 10148 1192 2137	Mass Cr(VI) Collected (ug) 320 37 65	Mass Cr/Paint (%) 4.9% 4.4% 4.8% 4.8% 4.1% 2.9%
Sample Run R12	Impactor	Particle Size (MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7	Mass of Dry Paint Collected (ug) 6467 830 1343 1317 1047 573 400	AAS Furnace Cr Concentration (ug/L) 0 0 0 0 0 0 560 220	AAS Flame Cr Concentration (ug/L) 10148 1192 2137 1830 1404 0 0	Mass Cr(VI) Collected (ug) 320 37 65 63 43 17 7	Mass Cr/Paint (%) 4.9% 4.4% 4.8% 4.8% 4.1% 2.9% 1.8%
Sample Run R12	High Range Impactor #1	Particle Size (MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1	Mass of Dry Paint Collected (ug) 6467 830 1343 1317 1047 573 400 6190	AAS Furnace Cr Concentration (ug/L) 0 0 0 0 0 0 560 220 0	AAS Flame Cr Concentration (ug/L) 10148 1192 2137 1830 1404 0 0 9962	Mass Cr(VI) Collected (ug) 320 37 65 63 43 17 7 828	Mass Cr/Paint (%) 4.9% 4.4% 4.8% 4.8% 4.1% 2.9% 1.8% 5.3%
Sample Run R12	High Range Impactor #1	Particle Size (MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2	Mass of Dry Paint Collected (ug) 6467 830 1343 1317 1047 573 400 6190 517	AAS Furnace Cr Concentration (ug/L) 0 0 0 0 0 0 0 0 560 220 0 0 0	AAS Flame Cr Concentration (ug/L) 10148 1192 2137 1830 1404 0 0 9962 1213	Mass Cr(VI) Collected (ug) 320 37 65 63 43 17 7 328 36	Mass Cr/Paint (%) 4.9% 4.4% 4.8% 4.8% 4.8% 4.1% 2.9% 1.8% 5.3% 7.1%
Sample Run R12 R12 R12 R12 R12 R12 R12 R12 R12 R12	High Range Impactor #1	Particle Size (MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5	Mass of Dry Paint Collected (ug) 6467 830 1343 1317 1047 573 400 6190 517 637	AAS Furnace Cr Concentration (ug/L) 0 0 0 0 0 0 0 560 220 0 0 0 0 0 0	AAS Flame Cr Concentration (ug/L) 10148 1192 2137 1830 1404 0 0 9962 1213 2034	Mass Cr(VI) Collected (ug) 320 37 65 63 43 17 7 328 36 65	Mass Cr/Paint (%) 4.9% 4.4% 4.8% 4.8% 4.8% 4.1% 2.9% 1.8% 5.3% 7.1% 10.3%
Sample Run R12 R12	High Range Impactor #1	Particle Size (MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5	Mass of Dry Paint Collected (ug) 6467 830 1343 1317 1047 573 400 6190 517	AAS Furnace Cr Concentration (ug/L) 0 0 0 0 0 0 0 0 560 220 0 0 0	AAS Flame Cr Concentration (ug/L) 10148 1192 2137 1830 1404 0 0 9962 1213	Mass Cr(VI) Collected (ug) 320 37 65 63 43 17 7 328 36	Mass Cr/Paint (%) 4.9% 4.4% 4.8% 4.8% 4.8% 4.1% 2.9% 1.8% 5.3% 7.1%
Sample Run R12 R12 R12 R12 R12 R12 R12 R12 R12 R12	Impactor	Particle Size (MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5	Mass of Dry Paint Collected (ug) 6467 830 1343 1317 1047 573 400 6190 517 637 1147	AAS Furnace Cr Concentration (ug/L) 0 0 0 0 0 0 0 560 220 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	AAS Flame Cr Concentration (ug/L) 10148 1192 2137 1830 1404 0 0 9962 1213 2034 0 1444 0	Mass Cr(VI) Collected (ug) 320 37 65 63 43 17 7 328 36 65 0	Mass Cr/Paint (%) 4.9% 4.4% 4.8% 4.8% 4.1% 2.9% 1.8% 5.3% 7.1% 10.3% 0.0% 5.9% 5.6%
Sample Run R12 R12 R12 R12 R12 R12 R12 R12 R12 R12	High Range Impactor #1	Particle Size (MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 22.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 6.2 4.1 2.7	Mass of Dry Paint Collected (ug) 6467 830 1343 1317 1047 573 400 6190 517 637 1147 800 317 120	AAS Furnace Cr Concentration (ug/L) 0 0 0 0 0 0 560 220 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	AAS Flame Cr Concentration (ug/L) 10148 1192 2137 1830 1404 0 0 9962 1213 2034 0 1444 0 0 0	Mass Cr(VI) Collected (ug) 320 37 65 63 43 17 7 328 36 65 0 48 18 7	Mass Cr/Paint (%) 4.9% 4.4% 4.8% 4.8% 4.1% 2.9% 1.8% 5.3% 7.1% 10.3% 0.0% 5.9% 5.6% 6.2%
Sample Run R12 R12 R12 R12 R12 R12 R12 R12 R12 R12	High Range Impactor #2 Impactor #1	Particle Size (MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 14.5 9.5 6.2 4.1 2.7 11.4	Mass of Dry Paint Collected (ug) 6467 830 1343 1317 1047 573 400 6190 517 637 1147 800 317 120 22900	AAS Furnace Cr Concentration (ug/L) 0 0 0 0 0 0 0 560 220 0 0 0 0 0 0 0 0 0 560 0 0 0 0 0 0 0 0	AAS Flame Cr Concentration (ug/L) 10148 1192 2137 1830 1404 0 0 9962 1213 2034 0 1444 0 0 1444 0 0 59340	Mass Cr(VI) Collected (ug) 320 37 65 63 43 17 7 7 328 36 65 0 48 18 7 1983	Mass Cr/Paint (%) 4.9% 4.4% 4.8% 4.8% 4.8% 4.1% 2.9% 1.8% 5.3% 7.1% 10.3% 0.0% 5.9% 5.6% 6.2% 8.7%
Sample Run R12 R12 R12 R12 R12 R12 R12 R12 R12 R12	High Range Impactor #2 Impactor #1	Particle Size (MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 22.7 34.1 22.2 14.5 9.5 6.2 14.5 9.5 6.2 4.1 2.7 11.4 7.0	Mass of Dry Paint Collected (ug) 6467 830 1343 1317 1047 573 400 6190 517 637 1147 800 317 120 22900 1077	AAS Furnace Cr Concentration (ug/L) 0 0 0 0 0 0 560 220 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	AAS Flame Cr Concentration (ug/L) 10148 1192 2137 1830 1404 0 0 9962 1213 2034 0 1444 0 0 0 9962 1213 2034 0 1444 0 0 0 59340 1583	Mass Cr(VI) Collected (ug) 320 37 65 63 43 17 7 7 328 36 65 0 48 18 7 7 1983 49	Mass Cr/Paint (%) 4.9% 4.4% 4.8% 4.8% 4.1% 2.9% 1.8% 5.3% 7.1% 10.3% 0.0% 5.9% 5.6% 6.2% 8.7% 4.6%
Sample Run R12 R12 R12 R12 R12 R12 R12 R12 R12 R12	High Range Impactor #2 Impactor #1	Particle Size (MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 22.2 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3	Mass of Dry Paint Collected (ug) 6467 830 1343 1317 1047 573 400 6190 517 637 1147 800 317 120 22900 1077 747	AAS Furnace Cr Concentration (ug/L) 0 0 0 0 0 0 560 220 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	AAS Flame Cr Concentration (ug/L) 10148 1192 2137 1830 1404 0 0 9962 1213 2034 0 1444 0 0 0 9962 1213 2034 0 1444 0 0 59340 1583 709	Mass Cr(VI) Collected (ug) 320 37 65 63 43 17 7 328 36 65 0 48 18 7 1983 49 26	Mass Cr/Paint (%) 4.9% 4.4% 4.8% 4.8% 4.1% 2.9% 1.8% 5.3% 7.1% 10.3% 0.0% 5.9% 5.6% 6.2% 8.7% 4.6% 3.5%
Sample Run R12 R12 R12 R12 R12 R12 R12 R12 R12 R12	High Range Impactor #2 Impactor #1	Particle Size (MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3 2.6	Mass of Dry Paint Collected (ug) 6467 830 1343 1317 1047 573 400 6190 517 637 1147 800 317 120 22900 1077 747 493	AAS Furnace Cr Concentration (ug/L) 0 0 0 0 0 0 0 560 220 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	AAS Flame Cr Concentration (ug/L) 10148 1192 2137 1830 1404 0 0 9962 1213 2034 0 1444 0 0 0 9962 1213 2034 0 1444 0 0 0 59340 1583	Mass Cr(VI) Collected (ug) 320 37 65 63 43 17 7 7 328 36 65 0 48 18 7 7 1983 49	Mass Cr/Paint (%) 4.9% 4.4% 4.8% 4.8% 4.1% 2.9% 1.8% 5.3% 7.1% 10.3% 0.0% 5.9% 5.6% 6.2% 8.7% 4.6%
Sample Run R12 R12 R12 R12 R12 R12 R12 R12 R12 R12	High Range Impactor #1	Particle Size (MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 22.2 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3	Mass of Dry Paint Collected (ug) 6467 830 1343 1317 1047 573 400 6190 517 637 1147 800 517 637 1147 800 317 120 22900 1077 747 493 313 313	AAS Furnace Cr Concentration (ug/L) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	AAS Flame Cr Concentration (ug/L) 10148 1192 2137 1830 1404 0 0 9962 1213 2034 0 1444 0 0 1444 0 0 59340 1583 709 0 0 0 0 0	Mass Cr(VI) Collected (ug) 320 37 65 63 43 17 7 328 36 65 0 48 18 7 1983 49 26 11 4 4 2	Mass Cr/Paint (%) 4.9% 4.4% 4.8% 4.8% 4.1% 2.9% 1.8% 5.3% 7.1% 10.3% 0.0% 5.9% 5.6% 6.2% 8.7% 4.6% 3.5% 1.1% 0.5%
Sample Run R12 R12 R12 R12 R12 R12 R12 R12 R12 R12	High Range Impactor #2 Impactor #1	Particle Size (MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3 2.6 1.6 1.0 0.7	Mass of Dry Paint Collected (ug) 6467 830 1343 1317 1047 573 400 6190 517 637 1147 800 317 120 22900 1077 747 493 313 343 260	AAS Furnace Cr Concentration (ug/L) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	AAS Flame Cr Concentration (ug/L) 10148 1192 2137 1830 1404 0 9962 1213 2034 0 1444 0 0 1444 0 0 59340 1583 709 0 0 0 0 0	Mass Cr(VI) Collected (ug) 320 37 65 63 43 17 7 328 36 65 0 48 18 7 1983 49 26 11 4 2 2 1	Mass Cr/Paint (%) 4.9% 4.4% 4.8% 4.8% 4.8% 4.1% 2.9% 5.3% 7.1% 10.3% 0.0% 5.9% 5.6% 6.2% 8.7% 4.6% 3.5% 2.2% 1.1% 0.5% 0.3%
Sample Run R12 R12 R12 R12 R12 R12 R12 R12 R12 R12	Low Range High Range High Range Impactor #1 Impactor #1 Impactor #1	Particle Size (MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3 2.6 1.6 1.0 0.7 11.4	Mass of Dry Paint Collected (ug) 6467 830 1343 1317 1047 573 400 6190 517 637 1147 800 317 120 22900 1077 747 493 313 343 260 22800	AAS Furnace Cr Concentration (ug/L) 0 0 0 0 0 0 0 560 220 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	AAS Flame Cr Concentration (ug/L) 10148 1192 2137 1830 1404 0 9962 1213 2034 0 9962 1213 2034 0 1444 0 0 59340 1583 709 0 0 0 0 59340 1583 709 0 0 0	Mass Cr(VI) Collected (ug) 320 37 65 63 43 17 7 328 36 65 0 48 18 7 1983 49 26 11 4 2 2 1 1977	Mass Cr/Paint (%) 4.9% 4.4% 4.8% 4.8% 4.1% 2.9% 1.8% 5.3% 7.1% 10.3% 0.0% 5.9% 5.6% 6.2% 8.7% 4.6% 3.5% 2.2% 1.1% 0.5% 0.3% 8.7%
Sample Run R12 R12 R12 R12 R12 R12 R12 R12 R12 R12	Low Range High Range High Range Impactor #1 Impactor #1 Impactor #1	Particle Size (MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3 2.6 1.6 1.0 0.7 11.4 7.0	Mass of Dry Paint Collected (ug) 6467 830 1343 1317 1047 573 400 6190 517 637 1147 800 317 120 22900 1077 747 493 313 343 260 22800 1550	AAS Furnace Cr Concentration (ug/L) 0 0 0 0 0 0 0 560 220 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	AAS Flame Cr Concentration (ug/L) 10148 1192 2137 1830 1404 0 0 9962 1213 2034 0 9962 1213 2034 0 1444 0 0 59340 1583 709 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Mass Cr(VI) Collected (ug) 320 37 65 63 43 17 7 328 36 65 0 48 18 7 1983 49 26 11 1983 49 26 11 1 4 2 1977 74	Mass Cr/Paint (%) 4.9% 4.4% 4.8% 4.1% 2.9% 1.8% 5.3% 7.1% 10.3% 0.0% 5.9% 5.6% 6.2% 8.7% 4.6% 3.5% 2.2% 1.1% 0.5% 0.3% 8.7% 4.8%
Sample Run R12 R12 R12 R12 R12 R12 R12 R12 R12 R12	Low Range High Range High Range Impactor #1 Impactor #1 Impactor #1	Particle Size (MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3 2.6 1.6 1.0 0.7 11.4 7.0 4.3	Mass of Dry Paint Collected (ug) 6467 830 1343 1317 1047 573 400 6190 517 637 1147 800 317 1147 800 317 120 22900 1077 747 493 313 313 343 260 22800 1550 867	AAS Furnace Cr Concentration (ug/L) 0 0 0 0 0 0 0 560 220 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	AAS Flame Cr Concentration (ug/L) 10148 1192 2137 1830 1404 0 9962 1213 2034 0 1444 0 0 59340 1583 709 0 0 59340 1583 709 0 0 0 0 0 0 0 0 0 0 0 59340 1583 709 0 0 0 0 759340 1583 709 0 766	Mass Cr(VI) Collected (ug) 320 37 65 63 43 17 7 328 36 65 0 48 18 7 1983 49 26 11 4 4 2 2 1 1977 7 4 32	Mass Cr/Paint (%) 4.9% 4.4% 4.8% 4.8% 4.1% 2.9% 1.8% 5.3% 7.1% 10.3% 5.3% 7.1% 10.3% 5.6% 6.2% 8.7% 4.6% 3.5% 2.2% 1.1% 0.5% 0.3% 8.7% 4.8% 3.7%
Sample Run R12 R12 R12 R12 R12 R12 R12 R12 R12 R12	Low Range High Range High Range Impactor #1 Impactor #1 Impactor #1	Particle Size (MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3 2.6 1.6 1.0 0.7 11.4 7.0	Mass of Dry Paint Collected (ug) 6467 830 1343 1317 1047 573 400 6190 517 637 1147 800 317 120 22900 1077 747 493 313 343 260 22800 1550	AAS Furnace Cr Concentration (ug/L) 0 0 0 0 0 0 0 560 220 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	AAS Flame Cr Concentration (ug/L) 10148 1192 2137 1830 1404 0 0 9962 1213 2034 0 9962 1213 2034 0 1444 0 0 59340 1583 709 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Mass Cr(VI) Collected (ug) 320 37 65 63 43 17 7 328 36 65 0 48 18 7 1983 49 26 11 1983 49 26 11 1 4 2 1977 74	Mass Cr/Paint (%) 4.9% 4.4% 4.8% 4.1% 2.9% 1.8% 5.3% 7.1% 10.3% 5.3% 7.1% 10.3% 5.6% 6.2% 8.7% 4.6% 3.5% 2.2% 1.1% 0.5% 0.3% 8.7% 4.8% 4.8% 3.7% 2.2%
Sample Run R12 R12 R12 R12 R12 R12 R12 R12 R12 R12	High Range Impactor #2 Impactor #1	Particle Size (MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 22.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3 2.6 1.6 1.0 0.7 11.4 7.0 4.3 2.6 1.6 1.0	Mass of Dry Paint Collected (ug) 6467 830 1343 1317 1047 573 400 6190 517 637 1147 800 317 120 22900 1077 747 493 313 343 260 22800 1550 867 537	AAS Furnace Cr Concentration (ug/L) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	AAS Flame Cr Concentration (ug/L) 10148 1192 2137 1830 1404 0 0 9962 1213 2034 0 1444 0 0 1444 0 0 59340 1583 709 0 0 59340 1583 709 0 0 0 63452 2391 766 0 0 0	Mass Cr(VI) Collected (ug) 320 37 65 63 43 17 7 328 36 65 0 48 18 7 1983 49 26 11 4 2 2 1 1977 74 22 1 1977 74 32 4 2 2 4 4	Mass Cr/Paint (%) 4.9% 4.4% 4.8% 4.1% 2.9% 1.8% 5.3% 7.1% 10.3% 0.0% 5.9% 5.6% 6.2% 8.7% 4.6% 3.5% 2.2% 1.1% 0.5% 0.3% 8.7% 4.8% 3.7% 4.8% 3.7% 4.8% 3.7% 4.8% 3.7% 4.8% 5.2% 1.0% 0.5%
Sample Run R12 R12 R12 R12 R12 R12 R12 R12 R12 R12	Low Range Low Range High Range High Range Impactor #1 Impactor #1 Jupactor #1 Low Range Low Range Low Range Rang	Particle Size (MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3 2.6 1.6 1.0 0.7 11.4 7.0 4.3 2.6 1.6	Mass of Dry Paint Collected (ug) 6467 830 1343 1317 1047 573 400 6190 517 637 1147 800 517 637 1147 800 317 120 22900 1077 747 493 313 313 343 260 22800 1550 867 537 397	AAS Furnace Cr Concentration (ug/L) 0 0 0 0 0 0 0 560 220 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	AAS Flame Cr Concentration (ug/L) 10148 1192 2137 1830 1404 0 0 9962 1213 2034 0 1444 0 0 1444 0 0 59340 1583 709 0 0 59340 1583 709 0 0 0 63452 2391 766 0 0 0	Mass Cr(VI) Collected (ug) 320 37 65 63 43 17 7 328 36 65 0 48 18 7 1983 49 26 11 4 4 22 11 1977 74 32 49 26 11	Mass Cr/Paint (%) 4.9% 4.4% 4.8% 4.8% 4.8% 4.9% 5.3% 7.1% 10.3% 0.0% 5.9% 5.6% 6.2% 8.7% 4.6% 3.5% 0.3% 8.7% 4.8% 3.7% 4.8% 4.8% 4.8% 4.8% 4.8% 4.8% 4.8% 4.1% 5.3% 5.3% 5.3% 5.3% 5.3% 5.3% 5.3% 5.3

Sample		Particle Size	Mass of Dry Paint	AAS Furnace Cr	AAS Flame Cr	Mass Cr(VI)	Mass
Run	Impactor	(MMAD - um)	Collected (ug)	Concentration (ug/L)	Concentration (ug/L)	Collected (ug)	Cr/Paint (%)
							·····
		÷					
R13		34.1	2633	0	4589	157	5.9%
R13	High Range Impactor #1	22.2	333	641	0	21	6.2%
R13	ue i	14.5			Sample Lost		
R13	n n n	9.5	867	0	1691	54	6.2%
R13	igh Da	6.2	657	1260	964	41	6.3%
R13	エニ	4.1	360	506	0	16	4.5%
R13		2.7	193	146	0		2.4%
R13		34.1	2437	0	4466	150	6.2%
R13	High Range Impactor #2	22.2	360	574	0	20	5.4%
R13	or a	14.5	477	889	0	29	6.1%
R13	ЧЧ	9.5	837	0 1147	1481 0	49 35	5.8% 6.8%
R13	i₽idi	6.2 4.1	520 273	382	0	13	
R13		2.7	203	156	0	5	2.6%
R13		11.4	11130	0	21145	649	5.8%
R13 R13	a —	7.0	500	875	21145	28	5.6%
R13 R13	,#1	4.3	420	614	0	19	4.4%
R13 R13	i i a	4.3 2.6	420 297	286	0	9	3.0%
R13	Pac F	1.6	267	99	0	3	1.1%
R13	Low Range Impactor #1	1.0	177	66	Ő	2	
R13		0.7	160	53	0	2	
R13		11.4	11477	0	20171	657	5.7%
R13	0 01	7.0	750	1202	962	41	5.4%
R13	Low Range Impactor #2	4.3	573	0	0	0	0.0%
R13	Ct Ba	2.6	337	239	0	8	2.4%
R13	Nord	1.6			Sample Lost		
R13	ع ت	1.0	283	86	0	3	
R13		0.7	207	48	0	2	
R13	Carti	idge Filter	12323	0	20087	693	5.6%
		Dartiala Cina	Mass of Dry Daint	AAS Europe Cr		Macc Cr(//I)	Mass
Sample	Impactor	Particle Size	Mass of Dry Paint	AAS Furnace Cr	AAS Flame Cr	Mass Cr(VI)	Mass Cr/Paint (%)
Sample Run	Impactor	Particle Size (MMAD - um)	Mass of Dry Paint Collected (ug)	AAS Furnace Cr Concentration (ug/L)	AAS Flame Cr Concentration (ug/L)	Mass Cr(VI) Collected (ug)	Mass Cr/Paint (%)
	Impactor						
Run	Impactor	(MMAD - um)	Collected (ug)	Concentration (ug/L)	Concentration (ug/L)	Collected (ug)	Cr/Paint (%)
Run		(MMAD - um) 34.1					
Run		(MMAD - um)	Collected (ug) 4877	Concentration (ug/L)	Concentration (ug/L) 9061	Collected (ug) 280	Cr/Paint (%) 5.7% 8.2%
Run R14 R14		(MMAD - um) 34.1 22.2	Collected (ug) 4877 600	Concentration (ug/L) 0 1599	Concentration (ug/L) 9061 0	Collected (ug) 280 49	Cr/Paint (%) 5.7% 8.2% 8.2% 6.4%
Run R14 R14 R14 R14		(MMAD - um) 34.1 22.2 14.5	Collected (ug) 4877 600 637	Concentration (ug/L) 0 1599 0	Concentration (ug/L) 9061 0 1261	Collected (ug) 280 49 52	5.7% 8.2% 8.2% 6.4% 5.4%
Run R14 R14 R14 R14 R14	High Range Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5	Collected (ug) 4877 600 637 1017 703 247	Concentration (ug/L) 0 1599 0 0 0 0 496	Concentration (ug/L) 9061 0 1261 2027 1126 0	Collected (ug) 280 49 52 65 38 15	Cr/Paint (%) 5.7% 8.2% 6.2% 6.4% 5.4% 6.3%
Run R14 R14 R14 R14 R14 R14 R14		(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7	Collected (ug) 4877 600 637 1017 703 247 133	Concentration (ug/L) 0 1599 0 0 0 0 496 177	Concentration (ug/L) 9061 0 1261 2027 1126 0 0	Collected (ug) 280 49 52 65 38 15 5	Cr/Paint (%) 5.7% 8.2% 6.4% 5.4% 6.3% 4.0%
Run R14 R14 R14 R14 R14 R14 R14 R14	High Range Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1	Collected (ug) 4877 600 637 1017 703 247 133 5087	Concentration (ug/L) 0 1599 0 0 0 496 177 0	Concentration (ug/L) 9061 0 1261 2027 1126 0 0 0 11066	Collected (ug) 280 49 52 65 38 15 5 338	Cr/Paint (%) 5.7% 8.2% 6.4% 5.4% 6.3% 4.0% 6.6%
R14 R14 R14 R14 R14 R14 R14 R14 R14	High Range Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2	Collected (ug) 4877 600 637 1017 703 247 133 5087 643	Concentration (ug/L) 0 1599 0 0 0 496 177 0 1082	Concentration (ug/L) 9061 0 1261 2027 1126 0 0 0 11066 839	Collected (ug) 280 49 52 65 38 15 5 336 336	Cr/Paint (%) 5.7% 8.2% 6.4% 5.4% 6.3% 4.0% 6.6% 5.6%
Run R14 R14 R14 R14 R14 R14 R14 R14 R14 R14	High Range Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5	Collected (ug) 4877 600 637 1017 703 247 133 5087 643 790	Concentration (ug/L) 0 1599 0 0 0 496 177 0 1082 0	Concentration (ug/L) 9061 0 1261 2027 1126 0 0 0 11066 839 1292	Collected (ug) 280 49 52 65 38 15 5 336 36 43	Cr/Paint (%) 5.7% 8.2% 6.4% 5.4% 6.3% 4.0% 5.6% 5.6% 5.4%
R14 R14 R14 R14 R14 R14 R14 R14 R14 R14	High Range Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5	Collected (ug) 4877 600 637 1017 703 247 133 5087 643 790 1187	Concentration (ug/L) 0 1599 0 0 0 496 177 0 1082 0 0 0 0	Concentration (ug/L) 9061 0 1261 2027 1126 0 0 0 11066 839 1292 2088	Collected (ug) 280 49 52 65 38 15 5 336 36 36 43 65	Cr/Paint (%) 5.7% 8.2% 6.4% 5.4% 6.3% 4.0% 5.6% 5.6% 5.4% 5.5%
R14 R14 R14 R14 R14 R14 R14 R14 R14 R14	High Range Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2	Collected (ug) 4877 600 637 1017 703 247 133 5087 643 790 1187 737	Concentration (ug/L) 0 1599 0 0 0 496 177 0 1082 0 0 2271	Concentration (ug/L) 9061 0 1261 2027 1126 0 0 11066 839 1292 2088 952	Collected (ug) 280 49 52 65 38 15 5 336 336 36 43 65 73	Cr/Paint (%) 5.7% 8.2% 6.4% 5.4% 6.3% 4.0% 6.6% 5.6% 5.6% 5.5% 9.9%
R14 R14 R14 R14 R14 R14 R14 R14 R14 R14		(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 4.1 2.2 14.5 9.5 6.2 4.1 2.7 34.1 3.5 6.2 4.5 9.5 6.2 1.4 3.5 9.5 6.2 1.4 3.5 9.5 6.2 1.4 3.5 9.5 6.2 1.4 3.5 9.5 6.2 1.4 3.5 9.5 6.2 1.4 3.5 9.5 6.2 1.4 3.5 9.5 6.2 1.4 3.5 9.5 6.2 1.4 3.5 9.5 6.2 1.4 3.5 9.5 6.2 4.1 3.5 6.2 4.1 3.5 6.2 4.1 3.5 8.5 6.2 4.1 3.5 6.2 4.1 3.5 6.2 4.1	Collected (ug) 4877 600 637 1017 703 247 133 5087 643 790 1187 737 380	Concentration (ug/L) 0 1599 0 0 0 496 177 0 1082 0 0 2271 450	Concentration (ug/L) 9061 0 1261 2027 1126 0 0 11066 839 1292 2088 952 0	Collected (ug) 280 49 52 65 38 15 5 336 336 336 336 336 73 5 73	Cr/Paint (%) 5.7% 8.2% 6.4% 5.4% 6.3% 4.0% 6.6% 5.6% 5.4% 5.5% 9.9% 3.9%
Run R14 R14 R14 R14 R14 R14 R14 R14 R14 R14	High Range Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.5 6.2 4.1 2.7	Collected (ug) 4877 600 637 1017 703 247 133 5087 643 790 1187 737 380 293	Concentration (ug/L) 0 1599 0 0 0 496 177 0 1082 0 1082 0 2271 450 209	Concentration (ug/L) 9061 0 1261 2027 1126 0 0 11066 839 1292 2088 952 0 0 0	Collected (ug) 280 49 52 65 38 15 5 336 36 43 65 73 15 7	Cr/Paint (%) 5.7% 8.2% 6.4% 5.4% 6.3% 4.0% 6.6% 5.6% 5.6% 5.4% 5.5% 9.9% 3.9% 2.2%
R14 R14 R14 R14 R14 R14 R14 R14 R14 R14	High Range High Range Impactor #2 Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 22.2 14.5 9.5 6.2 4.1 2.7 14.5 9.5 14.7 14.7	Collected (ug) 4877 600 637 1017 703 247 133 5087 643 790 1187 737 380 293 16760	Concentration (ug/L) 0 1599 0 0 0 496 177 0 1082 0 1082 0 2271 450 209 0	Concentration (ug/L) 9061 0 1261 2027 1126 0 0 11066 839 1292 2088 952 0 0 0 46320	Collected (ug) 280 49 52 65 38 15 5 336 336 43 65 73 15 7 7 1469	Cr/Paint (%) 5.7% 8.2% 6.4% 5.4% 6.3% 4.0% 6.6% 5.6% 5.6% 5.5% 9.9% 2.2% 8.8%
R14 R14 R14 R14 R14 R14 R14 R14 R14 R14	High Range High Range Impactor #2 Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 11.4 7.0	Collected (ug) 4877 600 637 1017 703 247 133 5087 643 790 1187 737 380 293 16760 780	Concentration (ug/L) 0 1599 0 0 0 0 496 177 0 1082 0 1082 0 2271 450 209 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 9061 0 1261 2027 1126 0 0 11066 839 1292 2088 952 0 0 0 0 0 1292 2088 952 0 0 0 1134	Collected (ug) 280 49 52 65 38 15 5 336 36 43 65 73 15 7 7 1469 36	Cr/Paint (%) 5.7% 8.2% 6.4% 5.4% 6.3% 4.0% 5.6% 5.6% 5.4% 5.5% 9.9% 3.9% 2.2% 8.8% 4.6%
R14 R14 R14 R14 R14 R14 R14 R14 R14 R14	High Range High Range Impactor #2 Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 2.2 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3	Collected (ug) 4877 600 637 1017 703 247 133 5087 643 790 1187 737 380 293 16760 780 477	Concentration (ug/L) 0 1599 0 0 0 496 177 0 1082 0 1082 0 2271 450 209 0 0 685	Concentration (ug/L) 9061 0 1261 2027 1126 0 0 11066 839 1292 2088 952 0 0 0 46320	Collected (ug) 280 49 52 65 38 15 5 336 36 36 36 36 36 37 315 7 1469 36 22	Cr/Paint (%) 5.7% 8.2% 6.4% 5.4% 6.3% 4.0% 6.6% 5.6% 5.6% 5.5% 9.9% 3.9% 2.2% 8.8% 4.6% 4.5% 3.2%
Run R14 R14 R14 R14 R14 R14 R14 R14 R14 R14	High Range High Range Impactor #2 Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 11.4 7.0	Collected (ug) 4877 600 637 1017 703 247 133 5087 643 790 1187 737 380 293 16760 780	Concentration (ug/L) 0 1599 0 0 0 0 496 177 0 1082 0 1082 0 2271 450 209 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 9061 0 1261 2027 1126 0 0 11066 839 1292 2088 952 0 0 0 46320 1134 0	Collected (ug) 280 49 52 65 38 15 5 336 36 43 65 73 15 7 7 1469 36	Cr/Paint (%) 5.7% 8.2% 6.4% 5.4% 6.3% 4.0% 6.6% 5.6% 5.4% 5.5% 9.9% 3.9% 2.2% 8.8% 4.6% 4.5% 3.2%
R14 R14 R14 R14 R14 R14 R14 R14 R14 R14	High Range Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3 2.6	Collected (ug) 4877 600 637 1017 703 247 133 5087 643 790 1187 737 380 293 16760 780 477 400	Concentration (ug/L) 0 1599 0 0 0 496 177 0 1082 0 1082 0 2271 450 209 0 0 0 685 425 178 75	Concentration (ug/L) 9061 0 1261 2027 1126 0 0 11066 839 1292 2088 952 0 0 0 46320 1134 0 0 0 0 0 0 0 0 0 0 0 0 0	Collected (ug) 280 49 52 65 38 15 5 336 43 65 73 36 43 65 73 15 7 7 1469 36 22 13 6 22 13 6 22	Cr/Paint (%) 5.7% 8.2% 6.4% 5.4% 6.3% 6.3% 6.6% 5.6% 5.6% 5.6% 5.6% 5.9% 3.9% 2.2% 8.8% 4.6% 4.5% 3.2% 1.9% 1.1%
Run R14 R14 R14 R14 R14 R14 R14 R14 R14 R14	High Range High Range Impactor #2 Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3 2.6 1.6	Collected (ug) 4877 600 637 1017 703 247 133 5087 643 790 1187 737 380 293 16760 780 477 400 307 217 180	Concentration (ug/L) 0 0 1599 0 0 0 496 177 0 1082 0 0 2271 450 209 0 0 685 425 178 75 53	Concentration (ug/L) 9061 0 1261 2027 1126 0 0 11066 839 1292 2088 952 0 0 0 46320 1134 0 0 0 0 0 0 0 0 0 0 0 0 0	Collected (ug) 280 49 52 65 38 15 5 336 43 65 73 15 7 1469 36 22 13 6 22 2	Cr/Paint (%) 5.7% 8.2% 6.4% 5.4% 6.3% 4.0% 5.6% 5.6% 5.6% 5.5% 9.9% 3.9% 2.2% 8.8% 4.6% 4.5% 3.2% 1.9% 1.1% 0.9%
Run R14 R14 R14 R14 R14 R14 R14 R14 R14 R14	Low Range High Range High Range Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3 2.6 1.6 1.0	Collected (ug) 4877 600 637 1017 703 247 133 5087 643 790 1187 737 380 293 16760 780 477 400 307 217 180	Concentration (ug/L) 0 1599 0 0 0 496 177 0 1082 0 1082 0 1082 0 0 2271 450 209 0 0 685 425 178 75 53 0	Concentration (ug/L) 9061 0 1261 2027 1126 0 0 11066 839 1292 2088 952 0 0 0 46320 1134 0 0 0 0 1134 0 0 0 1134 0 0 0 0 1134 0 0 0 0 1261 1261 1261 1262 0 0 0 0 0 0 0 0 0 0 0 0 0	Collected (ug) 280 49 52 65 38 15 5 336 36 43 65 73 15 7 1469 36 22 13 6 22 366 36 36 36 36 36 36 36 36 3	Cr/Paint (%) 5.7% 8.2% 6.4% 5.4% 6.3% 4.0% 5.6% 5.6% 5.4% 5.5% 9.9% 3.9% 2.2% 8.8% 4.6% 4.5% 3.2% 1.9% 1.1% 0.9% 2.2%
R14 R14 R14 R14 R14 R14 R14 R14 R14 R14	Low Range High Range High Range Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3 2.6 1.6 1.0 0.7 11.4 7.0	Collected (ug) 4877 600 637 1017 703 247 133 5087 643 790 1187 737 380 293 16760 780 477 400 307 217 180	Concentration (ug/L) 0 0 1599 0 0 0 496 177 0 1082 0 1082 0 2271 450 209 0 0 685 425 178 75 53 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 9061 0 1261 2027 1126 0 0 11066 839 1292 2088 952 0 0 0 46320 0 0 0 0 0 0 1134 0 0 0 1134 0 0 0 1134 0 0 0 1134 0 0 0 1134 0 0 0 1134 0 0 0 1134 0 0 0 0 0 0 0 0 0 0 0 0 0	Collected (ug) 280 49 52 65 38 15 5 336 366 43 65 73 1469 366 22 13 6 22 336 366 43 36 43 43 43 43 43 43 43 43 43 43	Cr/Paint (%) 5.7% 8.2% 6.4% 5.4% 6.3% 4.0% 6.6% 5.6% 5.4% 5.5% 9.9% 3.9% 2.2% 4.6% 4.5% 3.2% 1.9% 1.1% 0.9% 2.2% 4.0%
Run R14 R14 R14 R14 R14 R14 R14 R14 R14 R14	Low Range High Range High Range Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 1.1 2.7 11.4 7.0 1.4 7.0	Collected (ug) 4877 600 637 1017 703 247 133 5087 643 790 1187 737 380 293 16760 780 477 400 307 217 180 16900 1077 570	Concentration (ug/L) 0 0 1599 0 0 496 177 0 1082 0 1082 0 2271 450 209 0 0 685 425 178 75 53 0 0 0 691	Concentration (ug/L) 9061 0 1261 2027 1126 0 0 11066 839 1292 2088 952 0 0 46320 1134 0 0 0 0 0 1134 0 0 0 0 1134 0 0 0 0 0 0 0 0 0 0 0 0 0	Collected (ug) 280 49 52 65 38 15 5 336 36 36 36 36 36 36 21 1469 36 22 13 6 22 366 43 22 366 43 22 366 43 22 366 43 22 366 43 22 366 43 22 366 43 22 366 43 22 366 43 22 366 43 22 366 43 22 366 43 22 366 43 43 43 43 43 43 43 43 43 43	Cr/Paint (%) 5.7% 8.2% 6.4% 5.4% 6.3% 6.3% 6.6% 5.6% 5.6% 5.6% 5.5% 9.9% 3.9% 2.2% 8.8% 4.6% 4.6% 4.5% 1.1% 0.9% 1.1% 0.9% 4.0% 3.9%
Run R14 R14 R14 R14 R14 R14 R14 R14 R14 R14	Low Range High Range High Range Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3 2.6 1.6 1.0 0.7 11.4 7.0 4.3 2.6	Collected (ug) 4877 600 637 1017 703 247 133 5087 643 790 1187 737 380 293 16760 780 477 400 307 217 180 16900 1077 570 430	Concentration (ug/L) 0 1599 0 0 0 496 177 0 1082 0 1082 0 2271 450 209 0 0 0 685 425 178 75 53 0 0 0 0 691 327	Concentration (ug/L) 9061 0 1261 2027 1126 0 0 11066 839 1292 2088 952 0 0 0 46320 1134 0 0 0 0 1134 0 0 0 0 0 0 0 0 0 0 0 0 0	Collected (ug) 280 49 52 65 38 15 5 336 36 43 65 73 15 7 1469 36 22 13 6 22 366 43 22 13 15 7 1409 36 22 13 15 15 7 1409 36 22 13 15 15 15 15 15 15 15 15 15 15	Cr/Paint (%) 5.7% 8.2% 6.4% 5.4% 6.3% 4.0% 6.6% 5.6% 5.6% 5.5% 9.9% 3.9% 2.2% 8.8% 4.6% 4.5% 1.9% 1.1% 0.9% 2.2% 4.0% 3.9% 2.2%
Run R14 R14 R14 R14 R14 R14 R14 R14 R14 R14	Low Range High Range High Range Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3 2.6 1.6 1.6 1.6 1.6 1.6 1.6 1.6 1	Collected (ug) 4877 600 637 1017 703 247 133 5087 643 790 1187 737 380 293 16760 780 477 400 307 217 180 16900 1077 570 430 0	Concentration (ug/L) 0 1599 0 0 0 496 177 0 1082 0 1082 0 2271 450 209 0 0 685 425 178 75 53 0 0 691 327 0	Concentration (ug/L) 9061 0 1261 2027 1126 0 0 11066 839 1292 2088 952 0 0 0 0 0 0 0 1134 0 0 0 0 1134 0 0 0 0 0 0 0 0 0 0 0 0 0	Collected (ug) 280 49 52 65 38 15 5 336 43 65 73 155 77 1469 366 22 13 6 22 366 43 22 13 6 22 13 6 22 13 6 0 14 0 0 0 0 0 0 0 0 0 0 0 0 0	Cr/Paint (%) 5.7% 8.2% 6.4% 5.4% 6.3% 4.0% 5.6% 5.6% 5.6% 5.5% 9.9% 2.2% 8.8% 4.6% 4.5% 3.2% 1.9% 1.1% 0.9% 2.2% 4.0% 3.9% 2.2% 4.0% 3.9% 2.2% 4.0% 3.9% 2.2%
Run R14 R14 R14 R14 R14 R14 R14 R14 R14 R14	High Range High Range Impactor #2 Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3 2.6 1.6 1.0 0.7 11.4 7.0 4.3 2.6 1.6 1.0	Collected (ug) 4877 600 637 1017 703 247 133 5087 643 790 1187 737 380 293 16760 780 477 400 307 217 180 16900 1077 570 430 0 273	Concentration (ug/L) 0 0 1599 0 0 496 177 0 1082 0 0 2271 450 209 0 0 685 425 178 75 53 0 0 691 327 0 1327 0 125	Concentration (ug/L) 9061 0 1261 2027 1126 0 11066 839 1292 2088 952 0 0 0 46320 1134 0 0 0 1134 0 0 0 0 0 0 0 0 0 0 0 0 0	Collected (ug) 280 49 52 65 38 15 5 336 43 65 73 15 7 1469 36 22 13 6 22 366 43 22 10 0 0 4	Cr/Paint (%) 5.7% 8.2% 6.4% 5.4% 6.3% 4.0% 5.6% 5.6% 5.6% 5.5% 9.9% 3.9% 2.2% 8.8% 4.6% 4.5% 3.2% 1.9% 1.1% 0.9% 2.2% 4.0% 3.9% 1.1% 0.0% 1.4%
Run R14 R14 R14 R14 R14 R14 R14 R14 R14 R14	Low Range Low Range High Range High Range Impactor #2 Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3 2.6 1.6 1.6 1.6 1.6 1.6 1.6 1.6 1	Collected (ug) 4877 600 637 1017 703 247 133 5087 643 790 1187 737 380 293 16760 780 477 400 307 217 180 16900 1077 570 430 0	Concentration (ug/L) 0 0 1599 0 0 496 177 0 1082 0 1082 0 2271 450 209 0 0 685 425 178 75 53 0 0 0 691 327 0	Concentration (ug/L) 9061 0 1261 2027 1126 0 0 11066 839 1292 2088 952 0 0 0 0 0 0 0 1134 0 0 0 0 1134 0 0 0 0 0 0 0 0 0 0 0 0 0	Collected (ug) 280 49 52 65 38 15 5 336 43 65 73 155 77 1469 366 22 13 6 22 366 43 22 13 6 22 13 6 22 13 6 0 14 0 0 0 0 0 0 0 0 0 0 0 0 0	Cr/Paint (%) 5.7% 8.2% 6.4% 5.4% 6.3% 4.0% 5.6% 5.6% 5.4% 5.5% 9.9% 3.9% 2.2% 4.6% 4.5% 3.2% 1.9% 1.1% 0.9% 2.2% 4.0% 3.9% 2.2% 4.0% 3.9% 2.4% 0.0% 1.4% 0.7%

Sample	Impactor	Particle Size	Mass of Dry Paint	AAS Furnace Cr	AAS Flame Cr Concentration (ug/L)	Mass Cr(VI)	Mass
Run		(MMAD - um)	Collected (ug)	Concentration (ug/L)	Concentration (ug/L)	Collected (ug)	Cr/Paint (%)
R15		34.1	9273	0	19440	656	7.1%
R15	High Range Impactor #1	22.2	1447	0	3170	99	6.9%
R15	or∜	14.5	1013	0	1845	57	5.6%
R15	g R	9.5	2253	0	5295	164	
R15	n de l	6.2	1377	0	2122	74	
R15		4.1	690 417	1113 204	829 0	37 6	5.4% 1.5%
R15 R15		<u> </u>	8023	204	18670	610	7.6%
R15	0.01	22.2	1073	0	2189	69	6.4%
R15	bon En F	14.5	1270	0	3011	95	7.5%
R15	High Range Impactor #2	9.5	2073	0	5029	161	7.8%
R15	fag	6.2	1343	0	2518	83	6.2%
R15	[포트]	4.1	673	1069	771	36	5.4%
R15		2.7	383	192	0	6	
R15		11.4	33673	0	96330	2987	8.9%
R15	₿#	7.0	2123	0	4823	161 66	7.6%
R15	to ta	4.3	1097 427	0 532	2031 0	16	6.0% 3.7%
R15 R15	N F Dac	2.6 1.6	427 287	532 64	0	3	
R15	Low Range Impactor #1	1.0	207	18	0	1	0.2%
R15		0.7	173	8	0	0	0.1%
R15	<u> </u>	11.4	33503	0	93036	3006	9.0%
R15	e Ci	7.0	2453	0	4894	152	
R15	Low Range Impactor #2	4.3	1360	0	2081	71	5.2%
R15	act 2	2.6	637	0	369	12	
R15	0 ŭ	1.6	467	55	0	2 1	0.4% 0.1%
R15		1.0 0.7	390 307	15 8	0	0	
R15 R15	Cart	ridge Filter	47170	0	168333	5247	11.1%
KIJ	Our	luge i lite.	47110				
Sample	Important	Particle Size	Mass of Dry Paint	AAS Furnace Cr	AAS Flame Cr	Mass Cr(VI)	Mass
Sample Run	Impactor	Particle Size (MMAD - um)	Mass of Dry Paint Collected (ug)	AAS Furnace Cr Concentration (ug/L)	AAS Flame Cr Concentration (ug/L)	Mass Cr(VI) Collected (ug)	Mass Cr/Paint (%)
	Impactor					• • •	
Run	Impactor	(MMAD - um)	Collected (ug)	Concentration (ug/L)	Concentration (ug/L)	Collected (ug)	Cr/Paint (%)
Run		(MMAD - um) 34.1	Collected (ug) 5843	Concentration (ug/L)	Concentration (ug/L) 15035	• • •	Cr/Paint (%) 8.0%
Run		(MMAD - um)	Collected (ug)	Concentration (ug/L)	Concentration (ug/L)	Collected (ug) 467 60 78	Cr/Paint (%) 8.0% 7.0% 7.7%
Run R16 R16		(MMAD - um) 34.1 22.2	Collected (ug) 5843 847	Concentration (ug/L) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 15035 1962 2623 4087	Collected (ug) 467 60 78 123	Cr/Paint (%) 8.0% 7.0% 7.7% 8.0%
Run R16 R16 R16 R16 R16 R16		(MMAD - um) 34.1 22.2 14.5 9.5 6.2	Collected (ug) 5843 847 1013 1537 993	Concentration (ug/L) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 15035 1962 2623 4087 2015	Collected (ug) 467 60 78 123 67	Cr/Paint (%) 8.0% 7.0% 7.7% 8.0% 6.8%
Run R16 R16 R16 R16 R16 R16	High Range Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1	Collected (ug) 5843 847 1013 1537 993 410	Concentration (ug/L) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 15035 1962 2623 4087 2015 0	Collected (ug) 467 60 78 123 67 29	Cr/Paint (%) 8.0% 7.0% 7.7% 8.0% 6.8% 7.0%
Run R16 R16 R16 R16 R16 R16 R16		(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7	Collected (ug) 5843 847 1013 1537 993 410 200	Concentration (ug/L) 0 0 0 0 0 0 0 961 168	Concentration (ug/L) 15035 1962 2623 4087 2015 0 0	Collected (ug) 467 60 78 123 67 29 5	Cr/Paint (%) 8.0% 7.0% 8.0% 6.8% 7.0% 2.6%
Run R16 R16 R16 R16 R16 R16 R16 R16	High Range Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1	Collected (ug) 5843 847 1013 1537 993 410 200 5783	Concentration (ug/L) 0 0 0 0 0 0 0 0 961 168 0	Concentration (ug/L) 15035 1962 2623 4087 2015 0 0 14996	Collected (ug) 467 60 78 123 67 29 5 463	Cr/Paint (%) 8.0% 7.0% 8.0% 6.8% 7.0% 2.6% 8.0%
Run R16 R16 R16 R16 R16 R16 R16 R16 R16	High Range Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2	Collected (ug) 5843 847 1013 1537 993 410 200 5783 640	Concentration (ug/L) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 168 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 15035 1962 2623 4087 2015 0 0 0 14996 1218	Collected (ug) 467 60 78 123 67 29 5	Cr/Paint (%) 8.0% 7.0% 7.7% 8.0% 6.8% 7.0% 2.6% 8.0% 6.1%
Run R16 R16 R16 R16 R16 R16 R16 R16 R16	High Range Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5	Collected (ug) 5843 847 1013 1537 993 410 200 5783	Concentration (ug/L) 0 0 0 0 0 0 0 0 961 168 0	Concentration (ug/L) 15035 1962 2623 4087 2015 0 0 14996	Collected (ug) 467 60 78 123 67 29 5 463 39	Cr/Paint (%) 8.0% 7.0% 7.7% 8.0% 6.8% 7.0% 2.6% 8.0% 6.1% 6.9%
Run R16 R16 R16 R16 R16 R16 R16 R16 R16	High Range Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2	Collected (ug) 5843 847 1013 1537 993 410 200 5783 640 957 1570 1043	Concentration (ug/L) 0 0 0 0 0 0 0 961 168 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 15035 1962 2623 4087 2015 0 0 0 14996 1218 2096 4073 2224	Collected (ug) 467 60 78 123 67 29 5 463 39 66 124 68	Cr/Paint (%) 8.0% 7.0% 7.7% 8.0% 6.8% 7.0% 2.6% 8.0% 6.1% 6.9% 7.9% 6.5%
Run R16 R16 R16 R16 R16 R16 R16 R16 R16 R16		(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1	Collected (ug) 5843 847 1013 1537 993 410 200 5783 640 957 1570 1043 443	Concentration (ug/L) 0 0 0 0 0 961 168 0 0 0 0 0 821	Concentration (ug/L) 15035 1962 2623 4087 2015 0 0 0 14996 1218 2096 4073 2224 0	Collected (ug) 467 60 78 123 67 29 5 463 39 66 124 68 26	Cr/Paint (%) 8.0% 7.0% 7.7% 8.0% 6.8% 7.0% 2.6% 8.0% 6.1% 6.9% 6.5% 5.9%
Run R16 R16 R16 R16 R16 R16 R16 R16 R16 R16	High Range Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 22.2 14.5 9.5 6.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7	Collected (ug) 5843 847 1013 1537 993 410 200 5783 640 957 1570 1043 443 190	Concentration (ug/L) 0 0 0 0 961 168 0 0 0 0 0 168 168 170 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 15035 1962 2623 4087 2015 0 0 0 14996 1218 2096 4073 2224 0 0 0 0	Collected (ug) 467 60 78 123 67 29 5 463 39 66 124 68 26 5 5	Cr/Paint (%) 8.0% 7.0% 7.7% 8.0% 6.8% 7.0% 2.6% 8.0% 6.1% 6.9% 7.9% 6.5% 5.9% 2.8%
Run R16 R16 R16 R16 R16 R16 R16 R16 R16 R16	High Range High Range Impactor #2 Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 14.7 14.7	Collected (ug) 5843 847 1013 1537 993 410 200 5783 640 957 1570 1043 443 443 190 27280	Concentration (ug/L) 0 0 0 0 0 0 0 961 168 0 0 0 0 0 0 0 821 170 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 15035 15035 1962 2623 4087 2015 0 0 14996 1218 2096 4073 2224 0 0 0 71030	Collected (ug) 467 60 78 123 67 29 5 463 39 66 124 68 26 5 2304	Cr/Paint (%) 8.0% 7.0% 7.7% 8.0% 6.8% 7.0% 2.6% 8.0% 6.1% 6.9% 7.9% 6.5% 5.9% 2.8% 8.4%
Run R16 R16 R16 R16 R16 R16 R16 R16 R16 R16	High Range High Range Impactor #2 Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 11.4 7.0	Collected (ug) 5843 847 1013 1537 993 410 200 5783 640 957 1570 1043 443 190 27280 1677	Concentration (ug/L) 0 0 0 0 0 0 961 168 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 15035 1962 2623 4087 2015 0 0 14996 1218 2096 4073 2224 0 0 71030 3964	Collected (ug) 467 60 78 123 67 29 5 463 39 66 124 68 26 5 2304 121	Cr/Paint (%) 8.0% 7.0% 7.7% 8.0% 6.8% 7.0% 2.6% 6.1% 6.1% 6.9% 7.9% 6.5% 5.9% 2.8% 8.4% 7.2%
Run R16 R16 R16 R16 R16 R16 R16 R16 R16 R16	High Range High Range Impactor #2 Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3	Collected (ug) 5843 847 1013 1537 993 410 200 5783 640 957 1570 1043 443 190 27280 1677 830	Concentration (ug/L) 0 0 0 0 0 0 961 168 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 15035 1962 2623 4087 2015 0 0 14996 1218 2096 4073 2224 0 0 71030 3964 1430	Collected (ug) 467 60 78 123 67 29 5 463 39 66 124 68 26 5 2304 121 44	Cr/Paint (%) 8.0% 7.0% 7.7% 8.0% 6.8% 7.0% 2.6% 8.0% 6.1% 6.9% 7.9% 6.5% 5.9% 2.8% 8.4% 7.2% 5.4%
Run R16 R16 R16 R16 R16 R16 R16 R16 R16 R16	High Range High Range Impactor #2 Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 1.4 7.0 7.0 7.0 7.0 7.0 7.0 7.0 7.0	Collected (ug) 5843 847 1013 1537 993 410 200 5783 640 957 1570 1043 443 190 27280 1677 830 327	Concentration (ug/L) 0 0 0 0 0 0 961 168 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 15035 1962 2623 4087 2015 0 0 14996 1218 2096 4073 2224 0 0 71030 3964	Collected (ug) 467 60 78 123 67 29 5 463 39 66 124 68 26 5 2304 121	Cr/Paint (%) 8.0% 7.0% 7.7% 8.0% 6.8% 7.0% 2.6% 8.0% 6.1% 6.9% 7.9% 6.5% 5.9% 2.8% 8.4% 7.2% 5.4% 3.3%
Run R16 R16 R16 R16 R16 R16 R16 R16 R16 R16	High Range Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3	Collected (ug) 5843 847 1013 1537 993 410 200 5783 640 957 1570 1043 443 190 27280 1677 830	Concentration (ug/L) 0 0 0 0 0 0 961 168 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 15035 1962 2623 4087 2015 0 0 0 14996 1218 2096 4073 2224 0 71030 3964 1430 0	Collected (ug) 467 60 78 123 67 29 5 463 39 66 124 68 2304 124 68 2304 124 14 11	Cr/Paint (%) 8.0% 7.0% 7.7% 8.0% 6.8% 7.0% 2.6% 8.0% 6.1% 6.9% 7.9% 5.9% 2.8% 8.4% 7.2% 5.4% 3.3% 0.8% 0.3%
Run R16 R16 R16 R16 R16 R16 R16 R16 R16 R16	High Range High Range Impactor #2 Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.1 2.7 11.4 7.0 1.6 1.6 1.0 0.7	Collected (ug) 5843 847 1013 1537 993 410 200 5783 640 957 1570 1043 443 190 27280 1677 830 327 250 190 190	Concentration (ug/L) 0 0 0 0 0 0 961 168 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 15035 15035 1962 2623 4087 2015 0 0 14996 1218 2096 4073 2224 0 0 0 71030 3964 1430 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Collected (ug) 467 60 78 123 67 29 5 463 39 66 124 68 26 5 2304 121 44 11 2 44 11 0 0	Cr/Paint (%) 8.0% 7.0% 7.7% 8.0% 6.8% 7.0% 2.6% 8.0% 6.1% 6.9% 7.9% 6.5% 5.9% 5.9% 2.8% 8.4% 7.2% 5.4% 3.3% 0.8% 0.3%
Run R16 R16 R16 R16 R16 R16 R16 R16 R16 R16	Low Range High Range High Range Impactor #1 Impactor #2 Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 22.2 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3 2.6 1.6 1.0 0.7 11.4	Collected (ug) 5843 847 1013 1537 993 410 200 5783 640 957 1570 1043 443 190 27280 1677 830 327 250 190 190 173	Concentration (ug/L) 0 0 0 0 0 0 961 168 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 15035 1962 2623 4087 2015 0 0 14996 1218 2096 4073 2224 0 0 71030 3964 1430 0 0 0 71030 3964 1430 0 0 0 0 0 0 0 0 0 0 0 0 0	Collected (ug) 467 60 78 123 67 29 5 463 39 66 124 68 26 5 2304 121 44 11 2 2 30 1 0 0 2031	Cr/Paint (%) 8.0% 7.0% 7.7% 8.0% 6.8% 7.0% 2.6% 6.1% 6.9% 7.9% 6.5% 5.9% 2.8% 8.4% 7.2% 5.4% 3.3% 0.8% 0.3% 0.0%
Run R16 R16 R16 R16 R16 R16 R16 R16 R16 R16	Low Range High Range High Range Impactor #1 Impactor #2 Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3 2.6 1.6 1.0 0.7 11.4 7.0	Collected (ug) 5843 847 1013 1537 993 410 200 5783 640 957 1570 1043 443 190 27280 1677 830 327 250 1677 830 327 250 190 173	Concentration (ug/L) 0 0 0 0 0 0 961 168 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 15035 1962 2623 4087 2015 0 0 14996 1218 2096 4073 2224 0 0 71030 3964 1430 0 0 0 0 0 0 0 0 0 0 0 0 0	Collected (ug) 467 60 78 123 67 29 5 463 39 66 124 68 2304 121 121 44 11 2 2304 121 14 10 0 2031 136	Cr/Paint (%) 8.0% 7.0% 7.7% 8.0% 6.8% 7.0% 2.6% 8.0% 6.1% 6.9% 7.9% 6.5% 5.9% 2.8% 8.4% 7.2% 5.4% 3.3% 0.8% 0.3% 0.0% 8.5% 6.8%
Run R16 R16 R16 R16 R16 R16 R16 R16	Low Range High Range High Range Impactor #1 Impactor #2 Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3 2.6 1.6 1.0 0.7 11.4 7.0 4.3	Collected (ug) 5843 847 1013 1537 993 410 200 5783 640 957 1570 1043 443 190 27280 1677 830 327 250 190 173 23877 2003 1043	Concentration (ug/L) Concentration (ug/L) 0 0 0 961 168 0 0 0 0 0 821 170 0 0 821 170 0 0 821 170 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 15035 1962 2623 4087 2015 0 0 0 14996 1218 2096 4073 2224 0 0 71030 3964 1430 3964 1430 0 0 0 61790 4495 1448	Collected (ug) 467 60 78 123 67 29 5 463 39 66 124 68 26 5 2304 121 44 11 2 2304 121 44 11 2 1 0 2031 136 6 45	Cr/Paint (%) 8.0% 7.0% 7.7% 8.0% 6.8% 7.0% 6.8% 6.9% 7.9% 6.5% 6.5% 5.9% 2.8% 8.4% 7.2% 5.4% 3.3% 0.8% 0.3% 0.3% 6.8% 6.8% 4.3%
Run R16 R16 R16 R16 R16 R16 R16 R16 R16 R16	Low Range High Range High Range Impactor #1 Impactor #2 Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3 2.6 1.6 1.0 0.7 11.4 7.0 4.3 2.6 1.6 1.0 0.7 11.4 7.0 4.3 2.6	Collected (ug) 5843 847 1013 1537 993 410 200 5783 640 957 1570 1043 443 190 27280 1677 830 327 250 190 173 23877 2003 1043 463	Concentration (ug/L) Concentration (ug/L) 0 0 0 961 168 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 15035 1962 2623 4087 2015 0 0 0 14996 1218 2096 4073 2224 0 0 71030 3964 1430 0 0 0 61790 4095 1448 0	Collected (ug) 467 60 78 123 67 29 5 463 39 66 124 68 26 5 2304 121 44 11 2 1 0 2031 136 45 9	Cr/Paint (%) 8.0% 7.0% 7.7% 8.0% 6.8% 7.0% 6.8% 6.1% 6.9% 7.9% 6.5% 5.9% 2.8% 8.4% 7.2% 5.4% 0.3% 0.3% 0.3% 0.0% 8.5% 6.8% 4.3% 1.9%
Run R16 R16 R16 R16 R16 R16 R16 R16	Low Range High Range High Range Impactor #1 Impactor #2 Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3 2.6 1.6 1.0 0.7 11.4 7.0 4.3 2.6 1.6 1.6	Collected (ug) 5843 847 1013 1537 993 410 200 5783 640 957 1570 1043 443 190 27280 1677 830 327 250 190 173 23877 2003 1043 463 380	Concentration (ug/L) Concentration (ug/L) 0 0 0 961 168 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 15035 15035 1962 2623 4087 2015 0 0 0 14996 1218 2096 4073 2224 0 0 0 71030 3964 1430 0 0 0 61790 4495 1448 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Collected (ug) 467 60 78 123 67 29 5 463 39 66 124 68 26 5 2304 121 44 11 2 2304 121 44 11 2 39 66 5 2304 123 9 2304 123 46 5 2304 123 9 2304 124 68 26 5 2304 125 2304 205 2304 209 209 209 209 209 209 209 209	Cr/Paint (%) 8.0% 7.0% 7.7% 8.0% 6.8% 7.0% 2.6% 8.0% 6.1% 6.9% 7.9% 6.5% 6.5% 6.5% 6.5% 8.4% 7.2% 5.4% 3.3% 0.8% 0.8% 0.3% 0.0% 8.5% 6.8% 4.3% 4.3%
Run R16 R16 R16 R16 R16 R16 R16 R16 R16 R16	High Range High Range Impactor #2 Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3 2.6 1.6 1.0 0.7 11.4 7.0 4.3 2.6 1.6 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	Collected (ug) 5843 847 1013 1537 993 410 200 5783 640 957 1570 1043 443 190 27280 1677 830 327 250 180 1677 830 327 250 180 173 23877 2003 1043 463 380 323	Concentration (ug/L) 0 0 0 0 0 0 961 168 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 15035 1962 2623 4087 2015 0 0 14996 1218 2096 4073 2224 0 0 0 71030 3964 1430 0 0 61790 4495 1448 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Collected (ug) 467 60 78 123 67 29 5 463 39 66 124 68 26 5 2304 121 44 11 2 2304 121 44 11 2 304 121 44 5 0 2304 121 44 0 0 2031 136 45 9 9 2 0 0	Cr/Paint (%) 8.0% 7.0% 7.7% 8.0% 6.8% 7.0% 6.8% 6.1% 6.9% 7.9% 6.5% 6.9% 7.9% 6.5% 6.5% 6.5% 6.8% 0.3% 0.3% 0.3% 0.3% 0.3% 0.3% 0.3% 0.3
Run R16 R16 R16 R16 R16 R16 R16 R16 R16 R16	Low Range Low Range High Range High Range Impactor #2 Impactor #1 Impactor #2	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3 2.6 1.6 1.0 0.7 11.4 7.0 4.3 2.6 1.6 1.6	Collected (ug) 5843 847 1013 1537 993 410 200 5783 640 957 1570 1043 443 190 27280 1677 830 327 250 190 173 23877 2003 1043 463 380	Concentration (ug/L) 0 0 0 0 0 0 961 168 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) 15035 15035 1962 2623 4087 2015 0 0 0 14996 1218 2096 4073 2224 0 0 0 71030 3964 1430 0 0 0 61790 4495 1448 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Collected (ug) 467 60 78 123 67 29 5 463 39 66 124 68 26 5 2304 121 44 11 2 2304 121 44 11 2 39 66 5 2304 123 9 2304 123 46 5 2304 123 9 2304 124 68 26 5 2304 125 2304 205 2304 209 209 209 209 209 209 209 209	Cr/Paint (%) 8.0% 7.0% 7.7% 8.0% 6.8% 7.0% 6.8% 6.1% 6.9% 7.9% 6.5% 6.9% 7.9% 6.5% 6.5% 6.5% 6.8% 3.3% 0.8% 0.3% 0.3% 0.3% 0.0% 8.5% 6.8% 4.3% 6.8% 1.9% 0.4% 0.1%

Sample	Impactor	Particle Size	Mass of Dry Paint	AAS Furnace Cr	AAS Flame Cr	Mass Cr(VI)	Mass
Run	impactor	(MMAD - um)	Collected (ug)	Concentration (ug/L)	Concentration (ug/L)	Collected (ug)	Cr/Paint (%)
R17		34.1	6933	0	15979	533	7.7%
R17	High Range Impactor #1	22.2	903	0	1593	34	3.7%
R17	n n	14.5	983	0	1958	60	6.1%
R17	ğ	9.5	1903	0	3812	128	6.7%
R17	-hg d	6.2	1037	0	1948	60	5.8%
R17	포트	4.1	493	740	0	23	4.7%
R17		2.7	303	130	0	4	1.4%
R17		34.1		S	ample Lost		
R17	9 M	22.2	1090	0	1631	55	5.0%
R17	50# 5.	14.5	927	0	1478	44	4.7%
R17	82.63	9.5	1617	0	3184	104	6.5%
R17	r g	6.2	1107	0	1826	59	5.3%
R17	High Range Impactor #2	4.1	573	706	0	22	3.9%
R17		2.7	313	158	0	5	1.7%
R17		11.4	24583	0	67780	2204	9.0%
R17		7.0	1947	0	3498	112	5.8%
R17	bc#	4.3	1067	õ	1237	39	3.7%
R17	ic a	2.6	557	228	0	7	1.3%
R17 R17	ac F	1.6	383	58	0	2	0.5%
R17 R17	Low Range Impactor #1	1.0	323	20	0	1	0.2%
		0.7	273	9	0	0	0.1%
R17		11.4	273	9	74840	2430	9.1%
R17				0	4366	140	6.5%
R17	Low Range Impactor #2	7.0	2147 1043	0	4300	39	3.7%
R17	tor	4.3		352	1229	12	2.3%
R17	act R	2.6	503		0	2	0.5%
R17	o du	1.6	380	57 15	0	0	0.3%
R17		1.0	297		0	0	
R17	Carf	0.7	240	0	105240	3686	0.0%
R17	Cart	ridge Filter	40367	0	105240	3000	9.170
Camala		Dertiele Size	Moss of Dry Point		AAS Elamo Cr	Mass Cr(VI)	Mass
Sample	Impactor	Particle Size	Mass of Dry Paint	AAS Furnace Cr	AAS Flame Cr Concentration (ug/L)	Mass Cr(VI) Collected (ug)	Mass Cr/Paint (%)
Sample Run	Impactor	Particle Size (MMAD - um)	Mass of Dry Paint Collected (ug)	AAS Furnace Cr Concentration (ug/L)	AAS Flame Cr Concentration (ug/L)	Mass Cr(VI) Collected (ug)	Mass Cr/Paint (%)
	Impactor						
Run	Impactor	(MMAD - um)		Concentration (ug/L)	Concentration (ug/L)		
Run		(MMAD - um) 34.1	Collected (ug)	Concentration (ug/L)			
Run R18 R18		(MMAD - um) 34.1 22.2	Collected (ug)	Concentration (ug/L) S 0	Concentration (ug/L)	Collected (ug)	Cr/Paint (%) 5.4%
Run R18 R18 R18 R18		(MMAD - um) 34.1 22.2 14.5	Collected (ug) 1197 2327	Concentration (ug/L) S 0 0 0	Concentration (ug/L)	Collected (ug)	Cr/Paint (%)
Run R18 R18 R18 R18 R18		(MMAD - um) 34.1 22.2 14.5 9.5	Collected (ug) 1197 2327 1953	Concentration (ug/L) S 0 0 0 0 0	Concentration (ug/L) Sample Lost 2083 4973 3977	Collected (ug) 65 158	Cr/Paint (%) 5.4% 6.8% 6.2%
Run R18 R18 R18 R18 R18 R18		(MMAD - um) 34.1 22.2 14.5 9.5 6.2	Collected (ug) 1197 2327 1953 1490	Concentration (ug/L) S 0 0 0 0 0 0 0 0	Concentration (ug/L) Sample Lost 2083 4973	Collected (ug) 65 158 121	Cr/Paint (%) 5.4% 6.8%
Run R18 R18 R18 R18 R18 R18 R18	High Range Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1	Collected (ug) 1197 2327 1953 1490 720	Concentration (ug/L) S 0 0 0 0 0 0 1173	Concentration (ug/L) Sample Lost 2083 4973 3977 2727	Collected (ug) 65 158 121 83	Cr/Paint (%) 5.4% 6.8% 6.2% 5.5% 5.4%
Run R18 R18 R18 R18 R18 R18 R18 R18		(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7	Collected (ug) 1197 2327 1953 1490 720 437	Concentration (ug/L) S 0 0 0 0 0 0 0 0	Concentration (ug/L) Sample Lost 2083 4973 3977 2727 678	Collected (ug) 65 158 121 83 39	Cr/Paint (%) 5.4% 6.8% 6.2% 5.5%
Run R18 R18 R18 R18 R18 R18 R18 R18	High Range Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1	Collected (ug) 1197 2327 1953 1490 720 437 8380	Concentration (ug/L) S 0 0 0 0 0 1173 263	Concentration (ug/L) sample Lost 2083 4973 3977 2727 678 0	Collected (ug) 65 158 121 83 39 8	Cr/Paint (%) 5.4% 6.8% 6.2% 5.5% 5.4% 1.9%
R18 R18 R18 R18 R18 R18 R18 R18 R18 R18	High Range Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2	Collected (ug) 1197 2327 1953 1490 720 437 8380 1280	Concentration (ug/L) S 0 0 0 0 0 1173 263 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) sample Lost 2083 4973 3977 2727 678 0 18798 2483	Collected (ug) 65 158 121 83 39 8 590	Cr/Paint (%) 5.4% 6.8% 6.2% 5.5% 5.4% 1.9% 7.0% 6.2%
R18 R18 R18 R18 R18 R18 R18 R18 R18 R18	High Range Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5	Collected (ug) 1197 2327 1953 1490 720 437 8380 1280 1540	Concentration (ug/L) 5 0 0 0 0 0 1173 263 0	Concentration (ug/L) sample Lost 2083 4973 3977 2727 678 0 18798	Collected (ug) 65 158 121 83 39 8 590 79	Cr/Paint (%) 5.4% 6.8% 6.2% 5.5% 5.4% 1.9% 7.0%
Run R18 R18 R18 R18 R18 R18 R18 R18 R18 R18	High Range Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5	Collected (ug) 1197 2327 1953 1490 720 437 8380 1280 1540 2223	Concentration (ug/L) 5 0 0 0 0 0 1173 263 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) Sample Lost 2083 4973 3977 2727 678 0 18798 2483 3441 5011	Collected (ug) 65 158 121 83 39 <u>8</u> 590 79 104	Cr/Paint (%) 5.4% 6.8% 6.2% 5.5% 5.4% 1.9% 7.0% 6.2% 6.7% 7.2%
Run R18 R18 R18 R18 R18 R18 R18 R18 R18 R18	High Range Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2	Collected (ug) 1197 2327 1953 1490 720 437 8380 1280 1540 2223 1477	Concentration (ug/L) S 0 0 0 0 0 1173 263 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) Sample Lost 2083 4973 3977 2727 678 0 18798 2483 3441	Collected (ug) 65 158 121 83 39 8 590 79 104 160	Cr/Paint (%) 5.4% 6.8% 6.2% 5.5% 5.4% 1.9% 7.0% 6.2% 6.7% 7.2% 6.0%
Run R18 R18 R18 R18 R18 R18 R18 R18 R18 R18		(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1	Collected (ug) 1197 2327 1953 1490 720 437 8380 1280 1540 2223 1477 717	Concentration (ug/L) S 0 0 0 1173 263 0 0 0 0 0 0 0 0 0	Concentration (ug/L) Sample Lost 2083 4973 3977 2727 678 0 18798 2483 3441 5011 2795	Collected (ug) 65 158 121 83 39 8 590 79 104 160 88	Cr/Paint (%) 5.4% 6.8% 6.2% 5.5% 1.9% 7.0% 6.2% 6.7% 7.2% 6.0% 4.8%
Run R18 R18 R18 R18 R18 R18 R18 R18 R18 R18	High Range Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 14.5 9.5 6.2 4.1 2.7	Collected (ug) 1197 2327 1953 1490 720 437 8380 1280 1540 2223 1477 717 423	<u>Concentration (ug/L)</u> S 0 0 0 1173 263 0 0 0 0 0 0 0 1094 232	Concentration (ug/L) sample Lost 2083 4973 3977 2727 678 0 18798 2483 3441 5011 2795 808 0	Collected (ug) 65 158 121 83 39 8 590 79 104 160 88 355 8	Cr/Paint (%) 5.4% 6.8% 6.2% 5.5% 1.9% 7.0% 6.2% 6.7% 7.2% 6.0% 4.8% 1.8%
Run R18 R18 R18 R18 R18 R18 R18 R18 R18 R18	High Range High Range Impactor #2 Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 14.5 9.5 6.2 4.1 2.7 14.5 9.5 14.1 1.5 9.5 14.1 1.7 1.5 1.5 1.5 1.1 1.5 1.5 1.5 1.5	Collected (ug) 1197 2327 1953 1490 720 437 8380 1280 1540 2223 1477 717 423 25587	<u>Concentration (ug/L)</u> S 0 0 0 1173 263 0 0 0 0 0 0 0 0 0 0 0 0 0	Concentration (ug/L) Sample Lost 2083 4973 3977 2727 678 0 0 18798 2483 3441 5011 2795 808 0 74820	Collected (ug) 65 158 121 83 39 8 590 79 104 160 88 35 8 2386	Cr/Paint (%) 5.4% 6.8% 6.2% 5.5% 5.4% 1.9% 6.2% 6.7% 7.2% 6.0% 4.8% 1.8% 9.3%
Run R18 R18 R18 R18 R18 R18 R18 R18 R18 R18	High Range High Range Impactor #2 Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 11.4 7.0	Collected (ug) 1197 2327 1953 1490 720 437 8380 1280 1540 2223 1477 717 423 25587 2517	<u>Concentration (ug/L)</u> S 0 0 0 1173 263 0 0 0 0 1094 232 0 0 0 0 0 0 0 0 0	Concentration (ug/L) Sample Lost 2083 4973 3977 2727 678 0 18798 2483 3441 5011 2795 808 0 0 74820 5856	Collected (ug) 65 158 121 83 39 8 590 79 104 160 88 35 8 2386 169	Cr/Paint (%) 5.4% 6.8% 6.2% 5.5% 5.4% 1.9% 6.2% 6.7% 7.2% 6.0% 4.8% 1.8% 9.3% 6.7%
Run R18 R18 R18 R18 R18 R18 R18 R18 R18 R18	High Range High Range Impactor #2 Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3	Collected (ug) 1197 2327 1953 1490 720 437 8380 1280 1540 2223 1477 717 423 25587 2517 1357	Concentration (ug/L) Concentration (ug/L)	Concentration (ug/L) Sample Lost 2083 4973 3977 2727 678 0 18798 2483 3441 5011 2795 808 0 0 74820 5856 2094	Collected (ug) 65 158 121 83 39 8 590 79 104 160 88 35 8 2386 160 65	Cr/Paint (%) 5.4% 6.8% 6.2% 5.5% 5.4% 1.9% 6.2% 6.7% 7.2% 6.0% 4.8% 9.3% 6.7% 4.8%
Run R18 R18 R18 R18 R18 R18 R18 R18 R18 R18	High Range High Range Impactor #2 Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3 2.6	Collected (ug) 1197 2327 1953 1490 720 437 8380 1280 1380 1280 1380 1280 1380 1280 1347 717 423 25587 2517 1357 603	Concentration (ug/L) S 0 0 0 1173 263 0 0 0 0 0 0 0 0 0	Concentration (ug/L) Sample Lost 2083 4973 3977 2727 678 0 18798 2483 3441 5011 2795 808 0 74820 5856 2094 0	Collected (ug) 65 158 121 83 39 8 590 79 104 160 88 35 8 2386 169 65 12	Cr/Paint (%) 5.4% 6.8% 6.2% 5.5% 5.4% 1.9% 7.0% 6.2% 6.7% 7.2% 6.0% 4.8% 1.8% 9.3% 6.7% 4.8% 1.9%
Run R18 R18 R18 R18 R18 R18 R18 R18 R18 R18	High Range High Range Impactor #2 Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3 2.6 1.6	Collected (ug) 1197 2327 1953 1490 720 437 8380 1280 1540 2223 1477 717 423 25587 2557 2517 1357 603 527	<u>Concentration (ug/L)</u> S 0 0 0 1173 263 0 0 0 0 0 0 0 0 0	Concentration (ug/L) sample Lost 2083 4973 3977 2727 678 2483 3441 5011 2795 808 0 74820 5856 2094 0 0 0	Collected (ug) 65 158 121 83 39 8 590 79 104 160 88 8 35 2386 169 65 12 3	Cr/Paint (%) 5.4% 6.8% 6.2% 5.5% 5.4% 6.2% 6.7% 6.2% 6.7% 4.8% 1.8% 9.3% 6.7% 4.8% 1.9% 0.6%
Run R18 R18 R18 R18 R18 R18 R18 R18 R18 R18	High Range Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3 2.6 1.6 1.0	Collected (ug) 1197 2327 1953 1490 720 437 8380 1280 1540 2223 1477 717 423 25587 2517 1357 603 527 443	<u>Concentration (ug/L)</u> S 0 0 0 1173 263 0 0 0 0 0 0 0 0 0	Concentration (ug/L) Sample Lost 2083 4973 3977 2727 678 0 18798 2483 3441 5011 2795 808 0 74820 5856 2094 0 0 0 0 0 0 0 0 0 0 0 0 0	Collected (ug) 65 158 121 83 39 8 590 79 104 160 88 355 8 2386 169 65 12 3 3 1	Cr/Paint (%) 5.4% 6.8% 6.2% 5.5% 5.4% 1.9% 6.2% 6.7% 4.8% 1.8% 9.3% 6.7% 4.8% 1.9% 0.6% 0.6% 0.2%
Run R18 R18 R18 R18 R18 R18 R18 R18 R18 R18	High Range High Range Impactor #2 Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 11.4 7.0 11.4 7.0 1.6 1.6 1.0 0.7	Collected (ug) 1197 2327 1953 1490 720 437 8380 1280 1540 2223 1477 717 423 25587 2517 1357 603 527 443 390	<u>Concentration (ug/L)</u> S 0 0 0 1173 263 0 0 0 0 0 0 0 0 0	Concentration (ug/L) Sample Lost 2083 4973 3977 2727 678 0 0 18798 2483 3441 5011 2795 808 0 74820 5856 2094 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Collected (ug) 65 158 121 83 39 8 590 79 104 160 88 35 8 2386 169 65 12 3 1 0	Cr/Paint (%) 5.4% 6.8% 6.2% 5.5% 5.4% 1.9% 6.2% 6.7% 7.2% 6.0% 1.8% 1.8% 9.3% 6.7% 4.8% 1.9% 0.6% 0.2% 0.1%
Run R18 R18 R18 R18 R18 R18 R18 R18 R18 R18	Low Range High Range High Range Impactor #1 Impactor #2 Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3 2.6 1.6 1.0 0.7 11.4	Collected (ug) 1197 2327 1953 1490 720 437 8380 1280 1540 2223 1477 717 423 25587 2517 1357 603 527 443 390	<u>Concentration (ug/L)</u> S 0 0 0 1173 263 0 0 0 0 0 1094 232 0 0 0 0 388 104 27 13 0 0 0 0 0 0 0 0 0	Concentration (ug/L) Sample Lost 2083 4973 3977 2727 678 0 18798 2483 3441 5011 2795 808 0 0 74820 5856 2094 0 0 0 74820 0 5856 2094 0 0 0 114340	Collected (ug) 65 158 121 83 39 8 590 79 104 160 88 35 8 2386 169 65 12 3 1 0 3431	Cr/Paint (%) 5.4% 6.8% 6.2% 5.5% 5.4% 1.9% 6.2% 6.7% 7.2% 6.0% 4.8% 1.8% 9.3% 6.7% 4.8% 1.9% 0.6% 0.2% 0.1% 9.7%
Run R18 R18 R18 R18 R18 R18 R18 R18 R18 R18	Low Range High Range High Range Impactor #1 Impactor #2 Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3 2.6 1.6 1.0 0.7 11.4 7.0	Collected (ug) 1197 2327 1953 1490 720 437 8380 1280 1540 2223 1477 717 423 25587 2517 1357 603 527 443 390 35397 2773	Concentration (ug/L)	Concentration (ug/L) Sample Lost 2083 4973 3977 2727 678 0 18798 2483 3441 5011 2795 808 0 0 74820 5856 2094 0 0 0 74820 5856 2094 0 0 0 114340 5274	Collected (ug) 65 158 121 83 39 8 590 79 104 160 88 35 2386 169 65 12 3 1 0 0 3431 175	Cr/Paint (%) 5.4% 6.8% 6.2% 5.5% 5.4% 1.9% 6.2% 6.7% 6.2% 6.7% 4.8% 1.8% 9.3% 6.7% 4.8% 1.9% 0.6% 0.2% 0.1% 9.7% 6.3%
Run R18 R18 R18 R18 R18 R18 R18 R18 R18 R18	Low Range High Range High Range Impactor #1 Impactor #2 Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3 2.6 1.6 1.0 0.7 11.4 7.0 4.3	Collected (ug) 1197 2327 1953 1490 720 437 8380 1280 1540 2223 1477 717 423 25587 2517 1357 603 527 443 390 35397 2773 1360	Concentration (ug/L)	Concentration (ug/L) sample Lost 2083 4973 3977 2727 678 0 18798 2483 3441 5011 2795 808 0 74820 5856 2094 0 74820 5856 2094 0 0 0 114340 5274 1976	Collected (ug) 65 158 121 83 39 8 590 79 104 160 88 35 2386 169 65 12 33 1 0 3431 175 62	Cr/Paint (%) 5.4% 6.8% 6.2% 5.5% 5.4% 6.2% 6.7% 7.2% 6.0% 6.7% 7.2% 6.0% 6.7% 4.8% 1.9% 0.6% 0.2% 0.1% 9.7% 6.3% 6.3% 4.6%
Run R18 R18 R18 R18 R18 R18 R18 R18 R18 R18	Low Range High Range High Range Impactor #1 Impactor #2 Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3 2.6 1.6 1.0 0.7 11.4 7.0 4.3 2.6	Collected (ug) 1197 2327 1953 1490 720 437 8380 1280 1540 2223 1477 717 423 25587 2517 1357 603 527 443 390 35397 2773 1360 673	Concentration (ug/L)	Concentration (ug/L) sample Lost 2083 4973 3977 2727 678 2483 3441 5011 2795 808 0 74820 5856 2094 0 0 0 0 0 114340 5274 1976 368	Collected (ug) 65 158 121 83 39 8 590 79 104 160 88 355 8 2386 169 65 12 33 1 0 3431 175 62 15	Cr/Paint (%) 5.4% 6.8% 6.2% 5.5% 5.4% 1.9% 7.0% 6.2% 6.7% 4.8% 1.9% 0.6% 0.6% 0.6% 0.2% 0.1% 9.7% 6.3% 4.8%
Run R18 R18 R18 R18 R18 R18 R18 R18 R18 R18	Low Range High Range High Range Impactor #1 Impactor #2 Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3 2.6 1.6 1.0 0.7 11.4 7.0 4.3 2.6 1.6 1.6 1.6 1.6 1.6 1.6 1.6 1	Collected (ug) 1197 2327 1953 1490 720 437 8380 1280 1540 2223 1477 717 423 25587 2517 1357 603 527 443 390 35397 2773 1360 673 490	<u>Concentration (ug/L)</u> S 0 0 0 1173 263 0 0 0 0 0 0 0 0 0	Concentration (ug/L) Sample Lost 2083 4973 3977 2727 678 2483 3441 5011 2795 808 0 74820 5856 2094 0 0 114340 5274 1976 368 0	Collected (ug) 65 158 121 83 39 8 590 79 104 160 88 35 8 2386 169 65 12 33 1 0 3431 175 62 15 2	Cr/Paint (%) 5.4% 6.8% 6.2% 5.5% 5.4% 1.9% 7.0% 6.2% 6.7% 4.8% 1.8% 9.3% 6.7% 4.8% 1.9% 0.6% 0.6% 0.2% 0.1% 9.7% 6.3% 4.6% 2.2% 0.5%
Run R18 R18 R18 R18 R18 R18 R18 R18 R18 R18	High Range High Range Impactor #2 Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3 2.6 1.6 1.0 0.7 11.4 7.0 4.3 2.6 1.6 1.0 1.6 1.0	Collected (ug) 1197 2327 1953 1490 720 437 8380 1280 1540 2223 1477 717 423 25587 2517 1357 603 527 443 390 35397 2773 1360 673 490	<u>Concentration (ug/L)</u> S 0 0 0 1173 263 0 0 0 0 0 0 0 0 0	Concentration (ug/L) Sample Lost 2083 4973 3977 2727 678 0 0 18798 2483 3441 5011 2795 808 0 74820 5856 2094 0 74820 5856 2094 0 0 0 114340 5274 1976 368 0 0	Collected (ug) 65 158 121 83 39 8 590 79 104 160 88 35 8 2386 169 65 12 3 3 1 1 0 3431 175 62 15 15	Cr/Paint (%) 5.4% 6.8% 6.2% 5.5% 5.4% 1.9% 6.2% 6.7% 7.2% 6.0% 1.8% 1.8% 9.3% 6.7% 4.8% 1.9% 0.6% 0.2% 0.1% 9.7% 6.3% 4.6% 2.2% 0.1%
Run R18 R18 R18 R18 R18 R18 R18 R18 R18 R18	Low Range Low Range High Range High Range Impactor #2 Impactor #1 Impactor #2 Impactor #1	(MMAD - um) 34.1 22.2 14.5 9.5 6.2 4.1 2.7 34.1 22.2 14.5 9.5 6.2 4.1 2.7 14.5 9.5 6.2 4.1 2.7 11.4 7.0 4.3 2.6 1.6 1.0 0.7 11.4 7.0 4.3 2.6 1.6 1.6 1.6 1.6 1.6 1.6 1.6 1	Collected (ug) 1197 2327 1953 1490 720 437 8380 1280 1540 2223 1477 717 423 25587 2517 1357 603 527 443 390 35397 2773 1360 673 490	<u>Concentration (ug/L)</u> S 0 0 0 1173 263 0 0 0 0 0 0 0 0 0	Concentration (ug/L) Sample Lost 2083 4973 3977 2727 678 2483 3441 5011 2795 808 0 74820 5856 2094 0 0 114340 5274 1976 368 0	Collected (ug) 65 158 121 83 39 8 590 79 104 160 88 35 8 2386 169 65 12 3 3 1 1 0 3431 175 62 15 2 1 0	Cr/Paint (%) 5.4% 6.8% 6.2% 5.5% 5.4% 1.9% 6.2% 6.7% 7.2% 6.0% 4.8% 1.8% 9.3% 6.7% 4.8% 1.9% 0.6% 0.2% 0.1% 0.5% 0.1% 0.5% 0.1%

Appendix B: Deft Material Safety Data Sheet

Pager I MATERIAL SAFETY DATA SHEET Printed : 02/28/01 For Costings, Resins and Related Materials Revised : 11/30/99
 SECTION
 I
 FRODUCT INTEGRIPICATION

 danufacturer:
 REFT, INC. (CAGE COLE 334%1)
 Information Fixme: 1943) 474-9400

 17451
 VON KARMAN AVENUE
 Emergenzy

 CHEMINE:
 CHEMINE:
 FROM: 1800 424-9300
 1RVINE 92614 CA SECTION II - BAZARDOUS INGRUDIENTS
 Mainter
 Mainter
 Mainter
 Exposure
 Limits

 Ingredients
 CAS #
 Weight
 ACGIH
 CDFMA
 VF

 Ingredients
 CAS #
 #
 TLV
 STEL
 FEL
 STEL

 MENDARC, 1-CHLORO-4 TRIFLIDOROMETHYL
 98-56-6
 < 5.</td>
 N.E.
 N.E.
 N.E.
 N.E.
 STEL

 MENDARC, 1-CHLORO-2 TRIFLIDOROMETHYL
 98-56-6
 < 5.</td>
 N.E.
 N.E.
 N.E.
 N.E.
 N.E.
 S.E.
 5.3
 0.69F

 MENDIN, ACETART
 123-86-4
 < 0.1</td>
 N.E.
 N.E.
 N.E.
 N.E.
 S.E.
 5.3
 0.69F

 METHYL ACTART
 123-86-4
 < 5.</td>
 150 ppm
 200 ppm
 150 ppm
 200 ppm
 200 ppm
 250 ppm
 250 ppm
 2789-06-2
 25.

 METHYL ACTART
 7789-06-2
 25.
 1
 107-67-9
 25.
 1
 107-67-9

 The ACGIH WA for Strontium Chromate (CAS 7789-06-2) as Cr
 is 0.0005 mg/m23.
 1
 10
 10
 10

 Sais Antematic Hydrocambon
 62422-85-6
 < 5.</td>
 N.E.
 N.E.
 N.E.
 N.E.
 N.E.
 3
 8
 687

 Manufasture recommende a FILL of 100 pps.
 52-50-4
 < 5.</td>
 N.E.
 N.E.
 THY ABOVE LISTED PRODUCTS ARE ON THE TACA INVENTORY LAST. ALSO ANY CHLISTED INCREDIENTS. I.E. = Not Established SECTION III - PHYSICAL DATA biling Range: 213 - 396 Deg. F Vapor Density: Heavier than Air. wap. Rate: 1.65 x n-Buryl Acatare Liquid Density: Meavier than Air. blatiles vol & 44.8 Wgt 27.6 Wgt per gallon: 11.23 Pounds. Spec. Gravity: 1.34814 y.o.C.: 361 G/L DLUBILITY IN WATER: Insoluble FN: Not explicable PTOICHITION TEMPERATURE: No information found lanmability Class: IB Flash Foint: 46 F TOC LEM: 0.908 UEL: 10.508 EXTINGUISHING MEDIA: EXTINGUISHING MEDIA: FORM ALCONOL FORM, CO2, DEV CHEMICAL, WATTE FOC** SPECIAL FIREFIGHTING ENCOLDERES: Full fire fighting equipment with self-contained breathing apparatus and full protective clothing should be worn by fire fighters. Water may be used to cool clused containers to prevent pressure build-up, auto ignition or explosion. WATGRAL FIRE & EXFLOSION HACAPOS: Keep containers tightly closed. Holate from heet, sparks. electrical equipment and open flame. Closed containers may explode where expected to extreme heat. Application to het surfaces requires special precautions. During emergency conditions overexpecture to discomposition products may cause a health hazard. Symptoms may not be immediately apparent. SECTION V - HEALTH BALAND DATA Section V - Health Baragd Data PERMISSIBLE EXPONENT LEVEL: SEZ SECTION 11, HATARDOUS INCREDIENTS. EFFECTS OF OVEREXPOSURE: INNELATION: Irritation of the respiratory tract & acute nervous system depression characterized by the following progressive steps: headsche, dirringes, steggaring gait, confusion, uncordingeses or coma. SKIN AND EYE CONTACT: SKID: Contact with the Skin can cause interime and mark SKIN AND EYE CONTACT: SKIN: Contact with the skin dan cause irritation. Symptone may be svelling, redness, and rash. EYES: Liquid, erecords, or vapors are irritating and may cause tearing, redness, and swelling accompanied by a stinging mensation. SKIN ARSORFTION: Prelonged or repeated contact can cause moderate irritation, drying, and defatting of the skin which can cause the skin to crack. INCESTION: Acute: Can result in irritation and possible

corresive action in the mouth, stomach tissue and digestive tract. Veniting may cause aspiration of the solvent, resultin in chemical pneumonitis. HEALTH HAIARDS (ACUTE AND CHEMNIC) ACUTE Vapors are irritating to eyes, nose, and throat. Inhelation may cause headaches, difficult breathing and loss

Inhalation may cause headaches, difficult breathing and loss -consciousness. CHRCHIC: Prolonged contact will cause drying and cracking of skin, due to defatting action. Skin sensitization, estima or other allergic responses may develop. Repeated and prolonged exposure may cause delayed effects involving the blood, gastr intestinal, hervous and reproductive systems. PRIMARY ROUTI(S) OF ENTRY: TOFICAL (SKIN CONTACT): Yes INCESTION (GASTRO-INTESTINL): NO ENTRALED (INCESL You NOT

INHALATION (LUNCS) - Yes CARCINORPHICITY |

NTP1: YES, IARC MONOGRAPHSP: YES, OSHA REGULATEDT: YES

MEDICAL CONDITIONS GENERALLY ACCRAVATED BY EXPOSURE - Astima and any other respiratory disorders. Skin allergies, eczena, and dernititis.

-FIRST AID:

REALATION: Move to an area free from risk of further exposur-Restore breathing. Astmatic type symptoms may develop and may be immediate or delayed by several hours. Obtain modical attention.

SKIN: Remove contaminated clothing. Wash affected areas thoroughly with scap and water. Wash contaminated clothing thoroughly before reuse.

EYES: Flush with clean lukewarm water (low pressure) for at

Least 15 minutes, occasionally lifting syslids. Ottain medical attention. INCESTION: Do not induce voniting. Do not give enything to an unconscious person. Obtain medical attention.

SECTION VI - REACTIVITY DATA

	90° A.I	~ * *	ww.	*		. 16.00 . Ar . 40-	× 4 - 4		4.0x 5 x 2 x		
			** ** **	an an an an an	an an an an an a	in ser as ser					
STABLITY :	[] Vastable		$\{x\}$	Stab	i.						
RAZARDODA	POLYMERT ATTON	ŧ	1 \$	lan an	Sec. 32 Sec.		1 s	1	11 No.	27.00	CSC-C*117

8Ă IATION: [] May occur [x] Will not occu: - INCOMPATIBILITY STRONG CALDILING AGENTS AND STRONG LEWIS OR MINESAL ACTOS.

-CONDITIONS TO AVOID: BICH TEMPERATURES, SPARES, OR OPEN PLAMES, AVOID UNCONTROLLED

REACTIONS WITH AMINES. -HALARDOUS DECOMPOSITION PRODUCTS:

BY HICH HEAT/TENPERATER: Carbon monoxide, carbon dioxide, and oxides of sitrogen. Aldehydes and soids may be formed dur: computtion. Chronium oxides when burned.

SECTION VII - SPILL OR LEAK PECCEDURES

-STEPS TO BE TAKES IN CASE MATERIAL IS RELEASED ON SPILLED

Evacuate all non-essential personnel. Remove all sources of ignition (flame, spark sources, hot surfaces). Ventilate area Contain and remove with inert absorbent and non-sparking tool: -WASTE DISPOSAL METHOD:

E DISPOSAL METHOD: Naste must be disposed of in accordance with federal, state, e local environmental control regulations. Empty containers must be handled with cars, due to product residue and flammable vap DO NOT incinerate closed containers. ALSO FET SIGTION IV, VV, VF, FOR OTHER TERCAUTIONS. EFA HALARDOUS WASTE FURDER/CODE: D001, D007, F003, F005 HAZARDOUS WASTE CHARACTERISTICS: TENTIATION, WASTE SUBJECT:

A. 16 1 20	MARTIN	SHEWSCE.	001011
	×7.983 *****	88.47 P. W. W. S	88.0

CORROSIVITY: se

KEACTIVITY : STS.

SECTION VIII - SPECIAL PROTECTION INCOMMATION:

-RESPIRATORY FROMECTION:

A respirator that is recommended or approved for use in an organic vapor environment (air purifying or freeh air supplies is necessary. Observe OSHA regulations for respirator use. Ventilation should be provided to keep exposure levels below t OSMA permissible limits -VENTILATION:

Enhaust ventilation sufficient to keep the mirborns concentra-tions of solvent vapors or mists below their respective TLV/s must be utilized. Remove all ignition sources (hert. sparks, flame, and hot surfaces). -PROTECTIVE GLOVES:

Protective gloves are recommended (cotton, meoprens, rubber, polyethylene) to prevent skin contact.

-BYE FROTECTION:

The use of safety evenear is recommended, including splash guards or side shields, chemical goggles or face shields. -OTHER PROFECTIVE EQUIPMENT:

The use of long sleeve and long leg clothing is recommended. Remove and wash contaminated clothing before reuse.

SECTION IX - SPECIAL PRECAUTIONS (continued on next page)

: 2 DEFT, INC. (CAGE CODE 33461) Material Safety Data Sheet for: MIL-PRF-23377G (MIL-P-23377G) (02Y040)

'age: 2

SECTION IX - SPECIAL PRECAUTIONS (cont.)	1
OTHER PROJECTIVE EQUIPMENT:	r ner der ser ser ser den ser
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING: Store in buildings designed to comply with OSHA 1910.105 Avoid storing near high temperatures, fire, open flames, ar spark sources. Store in tightly closed containers. Store in well ventilated areas. OTHER PRECAUTIONS:	
Keep containers tight and upright to prevent leakage. Preve prolonged breathing of vapors or spray mists. Prolonged ove exposure may cause an allergic reaction. Aviod contact with skin and eyes. Do not take internally. Do not handle until manufacturers safety precautions have been read and underst wash hands before eating, smoking, or using washroom. Smoke smoking areas CNLY.	the cod.
*** TRANSPORTATION INFORMATION ***	
APPLICABLE REGULATIONS: 49 CFR (YES); IMCO (NO); IATA (NO) MILITARY AIR (AFR 71-4) (NO) PROPER SHIPPING NAME: Faint REPORTABLE QUANTITY: Not applicable HAZARD CLASS: Flammable liquid 3 THIS MATERIAL WHEN PACKAGED IN CONTAINERS OF 1 LITER OR LES QUALIFIES AS FAINT IN LIMITED QUANTITY OF CLASS 3. REQUIRED LASELS: Flammable liquid O.S. POSTAL REGULATIONS: Not allowed to send via US FOSTAL SERVICE. *** DISCLAIMER *** Information contained herein is furnished without warranty any kind. Employers should use this information only as a supplement to other information gathered by them and must m independent determination of suitability and completeness of information from all sources to assure proper use of the materials and for the safety and health of their employees.	of ake f
ACTUAL VOC DETERMINED PER EPA REFERENCE METHOD 24.	

SECTION X - REGULATORY INFORMATION -SARA 313: This product contains the following toxic chemicals subject to reporting requirements of section 313 of the Emergency Plannir and Community Right To Know Act of 1986 and of 40 CFR 372: Percent by

CAS#	Chemical Name	Weight
7789-06-2	STRONTION CHROMATE	22.54
This product cont 26% by weight.	ains chronium (hexavalent	compound),

-PROF 65-CARCINOGENIC

WARNING: This product contains a chemical known to the state of California to cause cancer.

CAS# Chemical Name 7789-06-2 STRONTION CHRCMATE

This product contains chromium (hexavalent compound).

-PROP 65-TERATOGENIC

WARNING: This product contains a chemical known to the state of California to cause birth defects or other reproductive har

CAS#	Chemical Nam			
ا میں اور	None	 n sur sur sur		

-PROP 55-CARCINOGENIC & TERATOGENIC WARNING: This product may contain a chemical known to the stat California to cause cancer or birth defects or other reproduct

CAS#	Chemical Name	
• • • •	None	

		1 02/28/01		
For Costings, Res	sins and Related Materials	**		
	Bevined.	1 11/39/22		
SECTION 1	- PRODUCT INDENTIFICATION		· · .	
	***************************************	401 A74-5406		
anufacturer: DEPT. DET. (CAGE CODE 17451 VON RANNAN AVES	CE Emergency Phones (CEE Emergency Phones (CEENTREC Phones (00) 424-9300 8-424-9300		1 · · · · · · · · · · · · · · · · · · ·
INVINE	X			
92614	· · · · · · · · · · · · · · · · · · ·	an a an a'		3.3.
roduct Class: TYPE 1. CLASS C rade Name : M11-FRT-23377G (M11- roduct Code : 02/030CAT LA.S. Number: NCM2	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	uravary a		
	- HALARDOOD INCREDIENTS		14.	
	***************************************			a ta da da fara
		Exposure	inits	44 VP
ngrediente	CAS #	TIN STEL	PE:	stel in HG
	80-95-7 5,	**************************************		· · · · · · · · · · · · · · · · · · ·
LIPHATIC AMINE	Contains Bisphenol A (CAS 25154-52-3 < 5. 7	# 80-03-7) less t	han 35%,	and and a second se
LIPEATIC AMINE	35154-52-3 × 5. 3	LE. N.E.	N.E.	N.Z.
LIPHATIC AMINE	Contains Blaphanol A (CAS 193-83-3 c 1. 3	L.Z., N.Z.	N.X.	¥.2.
	Contains Bisphenol A (CAF	# 80-05-7) less th	han 55%.	
LIPHATIC AMINE	140-31-8 5. 2 Contains Bisphenol A (CAS	# \$20~85~71 Janua 1	EAM 55%.	X.E.
RE-BUTYL ALCONOL RE10 ARCMATIC HYDROCARDON	78-92-2 30. 100 64742-95-6 6.5. 3	ppm R.L. L.E. N.L.	100 ppm N.E.	n.g. 12.5 8 587 n.g. 3 6 687
MINO BILANE ESTER FOXY RESIN HARDENER FOXY RESIN HARDENER	Manufacturisi Percession of a 1769-24-3 <1	inten internet L.E. N.E. L.E. N.E.	N.E. N.E.	n.z. 0 0 70r N.E. 0 0 70r
THE ABOVE LISTED PRODUCTS AR	ON THE TECH INVESTORY LIST.			
PLANE PLANE CREATER AND AND CONTRACTOR				
h.E. é Nót Established			· ·	
COD 19997 1981	TTT - MIVETCAL NATE			n an
animeniesesiesessessessesses 1881 market 1888 market 18		**************************************		
biling Range: 211 - 401 beg. F ksp. Eate: 0.63 x n-Butyl Act blatiles vol % 34.8 Wgt% 29.7	state Liquid Density, Lighter V Mgt per gallon: 7.90	than Water. Pounds.		
ppearance: AMBIR LIQUID WITH FOLM	Sper. Gravity: 0.948	38	2011 1	
V.C.C. 281				e e e e e e
OLUBILITY IN WATER: Insoluble PTOIGNITION TEMPTRATURE: No inform	PH: Not applicable			
ECOMPOSITION TEMPERATURE: No ision	metion found			
ORROSIUN RATE: No information four	1 0			
ISCOSITY: Thin liquid to heavy vis			1	i da antes estas est Estas estas
SPATIAN IV - FI				이 이 사람이 같이 같이 많이
larmability Class: IB Flash Fo EXTINGUISHING MIDIA:	sint 72 F TCC LEL: 1.00% CEL:	9.60%		
EXTINGUISHING MEDIA:		and a second		
SPECIAL FIREPICHTING PROCEDURES:				그는 그는 것을 가지 않는 것을 하는 것을 수가 있다. 이렇게 좋아하는 것을 수가 있는 것을 것을 것을 것을 수가 있는 것을
Yull fire fighting equipment	with self-contained breathing			
	e clothing should be worn by fire to cool closed containers to prev			a da se da la composición de la composi
pressure build-up, auto ignit	ion or explosion.			
SNORVAL FIRE & EXPLOSION HALARDS: Keep containers tightly close	d. Isolate from heat, sparks.			
electrical equipment and oper	d. Isolate from heat, sparks. : flame. Closed containers may			
explode when exposed to extra surfaces requires special pro				그는 것이 아내는 사람이 있다.
conditions overexposure to de	composition products may cause a			
SECTION \	/ - HEALTE HAZARD DATA		•	
FERMISSIBLE EXPOSURE LEVEL		nan garapran (g. 19. 19. 19. 19. 19. 19. 19. 19. 19. 19		이 같은 것이 같아.
SEE SECTION II. HAZARDOUS INC	FEDIENTS,			
EFFECTS OF OVEREXFOSURE: INFRIATION: Ifritation of the	· respiratory tract & acuts serve	trø		
system depression characteria	ted by the following progressive			
steps: headache, dizziness, : unconsciousness or coma.	staggering gait, confusion,	and and a second se		
and the second				신 김 사람들은 것.
SKIN AND EYE CONTACT: SKIN: C irritation. Symptoms may be a	Contact with the skin can cause			1986 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 -
THE MALE AND A PROPERTY AND A PROPER	pore are irritating and nav cau	A	,	

irritation. Symptoms may be swelling, redness, and rash. XYEG: Liquid, areosols, or vapors are irritating and may cause tearing. radness, and swelling accompanied by a stinging sensation.

.

SKIN ABSORPTICA: Prolonged or repeated contact can cause moderate irritation; drying, and defatting of the skin which cause the skin to crack

INCESTION: Acute: Can result in insitation and possible corresive action in the mouth, stomach tissue and digestive in chemical parametrics.

HEALTH HAIARDS (ACUTE AND CHRONIC) ACUTE: Vapors are irritating to eyes, nose, and throat. Inhelation may gause headaches, difficult breathing and loss conscieusness

CHRONIC, Prolonged contact will cause drying and cracking of (skin, due to defatting action. Skin sensitization, astma or other allergic responses may develop. Potential for kidney am liver damage.

PRIMARY ROOTE(S) OF EFFIY: TOPICAL (SKIN CONTACT): Yes INCESTION (CAPTRO-INTESTINAL): No INHALATION (LADGS): Yes

CARCINOCENICITY:

MTP7: NO, IARC HONOGRAPHS?: NO, OSHA REGULATED?: NO

HEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXTOSUSE: Asthms and any other respiratory disorders. Skin allorgies. octama, and dermititis. -FIRST AID:

INHALATION: Hove to an area free from risk of further exposure Bestore breathing. Asimmatic type symptoms may develop and may be immediate or delayed by several hours. Obtain medical attention.

SKIN: Remove contaminated clothing. Wash affected areas theroughly with scap and water. Wash contaminated clothing theroughly before reuse.

EVES: Fluch with clean Lukewarm water (low pressure) for at least 15 minutes, occasionally lifting syslids. Obtain medical attention.

INCESTICH: Do not induce woniting. Do not give anything to an unconscious person. Obtain medical attention. ****

SECTION	·V1	~	REACTI	VITY	TATA		1	

STABLITY: [] Distable [x] Stable BALARDOUS FOLYMERIZATION: [] May occur [x] will not occur - INCOMPATIBILITY

OKIDILING MATERIALS AND STRONG ACIDS. EPOXY RESING UNDER UNCONTROLLED CONDITIONS.

-CONDITIONS TO AVOID: HIGH TEMPERATURES. EPCKY REGINS UNDER UNCONTROLLED CONDITIONS -HAZARDOUS DECOMPOSITION PRODUCTS:

BY HIGH HEAT/TEMPERATURE: Carbon monoxide, carbon disxide,

SECTION VII - SPILL OR LEAK PROCEDURES

-STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED ON SPILLED

Evacuate all non-essential personnal. Renove all sources of ignition (flame, spark sources, hot surfaces). Vontilate area Contain and remove with inset absorbent and non-sparking tool: -WANTE DISPOSAL METHOD:

2 DIFFERING METHOD: Naste must be disposed of in accordance with faderal, state, a local environmental control regulations. Empty containers must be handled with care, due to product residue and ilemmable way DO NOT incinerate closed containers. ALSO SEE SECTION TV. V. VI. POR OTHER FRECAUTIONS. EPA MAIARDOUS WASTE NUMERACOUNT: D001, F003, F005 HAIARDOUS WASTE CHARACTRENETICS:

IGNITABILITY: YES

CORROSIVITY: NO

REACTIVITY : YES

FECTION VIII - SPECIAL PROTECTION INFORMATION:

-RESPIRATORY PROTECTION:

A respirator that is recommended or approved for use in an organic vapor environment (air purifying or fresh air supplies is necessary, Observe OSHA regulations for respirator use. Ventilation should be provided to keep exposure levels below t OSHA permissible limits -VENTILATION:

Exhaust ventilation sufficient to keep the airborne concentra-tions of solvent vapors or mists below their respective TLV's must be utilized. Renove all ignition sources (heat. sparks, flame, and hot surfaces). - PROTECTIVE GLOVES:

(continued on next page)

age: 2 DEPT, INC. (CAGE CODE 33461) Material Safety Data Sheet for: MIL-FRF-23377G (NIL-F-23377G) (02Y040CAT) SECTION VIII - SPECIAL PROTECTION INFORMATION: (cont.) ******* PROTECTIVE GLOVES Protective gloves are recommended (cotton, neoprene, rubber, polyethylene) to prevent skin contact. EYE PROTECTION: The use of safety eyewear is recommended, including splash guards or side shields, chemical goggles or face shields. STHER PROTECTIVE EQUIPMENT: The use of long sleeve and long leg clothing is recommended. Remove and wash contaminated clothing before reuse. SECTION IX - SPECIAL PRECAUTIONS *********** PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING: Store in buildings designed to comply with OSHA 1910.106 Avoid storing near high temperatures, fire, open flames, and spark sources. Store in tightly closed containers. Store in well ventilated areas. **MHER PRECAUTIONS:** Keep containers tight and upright to prevent leakage. Prevent prolonged breathing of vapors or spray mists. Prolonged overexposure may cause an allergic reaction. Aviod contact with skin and eyes. Do not take internally. Do not handle until the manufacturers safety precautions have been read and understood. Wash hands before eating, smoking, or using washroom. Smoke in smoking areas CNLY. *** TRANSPORTATION INFORMATION *** APPLICABLE REGULATIONS: 49 CPE (YES); INCO (NO); LATA (NO) HILITARY AIR (APR 71-4) (80) PROPER SHIPPING NAME: Paint UN NUMBER: UN-1263 REPORTABLE QUANTITY: Not applicable HAZARD CLASS: Planmable liquid 3 THIS MATERIAL WHEN PACKAGED IN CONTAINERS OF 1 LITER OR LESS QUALIFIES AS PAINT IN LIMITED QUANTITY OF CLASS 3. REQUIRED LAFELS: Flammable liquid U.S. POSTAL REGULATIONS, Not allowed to send via US FOSTAL SERVICE. *** DISCLAIMER *** Information contained herein is furnished without warranty of any kind. Employers should use the information only as a loss supplement to other information gathered by them and must make independent determination of suitability and completeness of information from all sources to assure proper use of the materials and for the safety and health of their employees. ACTUAL VOC DETERMINED PER EPA REFERENCE METHOD 24.

SECTION X - REGULATORY INFORMATION -safa 313 : This product contains the following toxic chemicals subject to reporting requirements of section 313 of the Emergency Plannir and Community Right To Know Act of 1986 and of 40 CFR 372. Percent by Weight CAS Chemical Name ***** . 28.47 78-92-2 Sec-BUTYL ALCOHOL - PROP 65-CARCINOGENIC WARNING: This product contains a chemical known to the state of California to cause cancer. CAS¥ Chemical Name ******** None -PROP 65-TERATOGENIC WARNING: This product contains a chemical known to the state of California to cause birth defects or other reproductive has Chemical Name CASŤ Nong -PROP 65-CARCINOGENIC & TERATOCENIC MARNING: This product may contain a chemical known to the stat California to cause cancer or birth defects or other reproduct Α., Chemical Name CAS

None

Appendix C: DeSoto Material Safety Data Sheet

	MATERIAL SAFETY	DATA SHE	ET	Printed	: 07/	09/97
				Revised		
seesseesseesseesseesseesseesseesseesse			TIFICATI(1 12 13 13 13 13 13 13 13 13 13 13 13 13 13 13 13 13 13 13	*** *** *** *** ***
Manufacturer: COURTAULDS 5430 SAN F P.O.BOX 18 GLENDALE	FONDANNA PARA	Inf Eme CHE	ormation rgency MTREC	Phone: (8 Phone: (8 Phone: (9	18) 24 00) 22 00) 42	0-2060 8-5635 4-9300
roduct Class: EPOXY	POXY POLYAMIDE PR	Ha no IMER 0	Per	trème I Rea (Socal Pro	ctivity	e - 3 Y - 0
roper Shipping Name: Pa:	int zard Class 3 Pack section VII	ing Grou	195 TO BO IN AN AN AN AN AN AN		42 25 63 10 27 17 1	*** *** *** ***
******	*****	******		sure Limi	**************************************	- 100
lazardous Ingredients	CAS #		ACGIH/TI	N OSHA/		mm HG
METHYL ETHYL KETONE						- 1 - E - E - E - E - E - E - E - E - E
	000078-93-3	5 STEL-	200 ppr 300	a 200 300	ppa	70
	000078-93-3		300 50 ppr	300 100	ppm ppm	70 23
SNE		STEL=	300 50 ppr 100 ppr	300 - 100 - 150	pçm	70 23 6.6
INE XYLENE	000108-89-3	STEL= 15. STEL= 10.	300 50 ppr 100 ppr	300 100 150 100 150	pçm	23
ENE XYLENE BPOXY RESIN	000108-88-3 001330-20-7	STEL= 15. STEL= 10. STEL= 25. 20.	300 50 ppr 100 ppn 150 Undetex 0.0005 7	300 100 150 100 150 mined Ms Cr	mqq mq M3	23 6.6 N/AP N/AP
INE XYLENE BPOXY RESIN	000108-88-3 001330-20-7 025036-25-3 007789-06-2	STEL= 15. STEL= 10. STEL= 25.	300 50 ppr 100 ppn 150 Undetex 0.0005 7	300 100 150 100 150 mined Ms Cr	<u>bb</u> w	23 6.6 N/AP N/AP
ENE XYLENE BPOXY RESIN STRONTIUM CHROMATE	000108-88-3 001330-20-7 025036-25-3 007789-06-2	STEL= 15. STEL= 10. STEL= 25. 20. STEL=	300 50 ppr 100 ppn 150 Undetex 0.0005 7	300 100 150 100 150 100 150 100 150 100 150 100 10	mqq mq M3	23 6.6 N/AP N/AP
SNE XYLENE BPOXY RESIN STRONTIUM CHROMATE CHROMIC ACID, STRONT	000108-88-3 001330-20-7 025036-25-3 007789-06-2 TIUM SALT	STEL= 15. STEL= 10. STEL= 25. 20. STEL= < 5.	300 50 ppr 100 ppr 150 Undeter 0.0005 7 mg, 10 mg/ 400 ppr	300 100 150 100 150 100 150 100 150 100 150 100 150 100 150 100 150 100 150 15	ppm ppm mg/M3 As Cr	.23 6.6 N/AP N/AP
XYLENE *XYLENE *STRONTIUM CHROMATE CHROMIC ACID, STRONT TITANIUM DIOXIDE @	000108-88-3 001330-20-7 025036-25-3 007789-06-2 ITUM SALT 013463-67-7	STEL= 15. STEL= 10. STEL= 25. 20. STEL= < 5. < 5.	300 50 ppr 100 ppr 150 Undeter 0.0005 7 mg, 10 mg/ 400 ppr	300 100 150 100 150 100 150 Mined AB Cr M3 0.05 M3 10 1400 500	ppm ppm mg/M3 As Cr mg/M3	23 6.6 N/AP N/AP N/AP 44

COURTAULDS AEROSPACE Material Safety Data Sheet for: 513X390 SECTION II - (cont.) *** ALL Ingredients in this product are listed in the T.S.C.A. Inventory. @ >> These items are listed as required by 29CFR 1910:1200 because they appear on airborne contaminants list. However, in this product they are in fully encapsulated form and therefore are not hazardous to users under normal circumstances. If the cured product is sanded or ground so as to release respirable particles, suitable respiratory protection should be used. These items are subject to the reporting requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372. SECTION III - PHYSICAL DATA Boiling Range: 175 - 300 Deg. F Evap. Rate: Unavailable Volatiles volume: 60.4 % Vapor Density: Heavier than Air. Liquid Density: Heavier than Water. Wgt per gallon: 10.84 Pounds. Spec. Gravity: 1.301 Appearance: YELLOW LIQUID, SOLVENT ODOR V.O.C. (GR/L): 592 W/910X624&010X311 @C/4/1 SECTION IV - FIRE AND EXPLOSION HAZARD DATA Mability Class: FLAMMABLE Flash Point: 22 F Setaflash LEL: Unknown - EXTINGUISHING MEDIA: -EXTINGUISHING MEDIA: Carbon dioxide, dry chemical or foam. -SPECIAL FIREFIGHTING PROCEDURES: Water spray may be ineffective. cool fire exposed containers with water. Fog nozzles are preferrable. Wear NIOSH/MSHA approved self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes. -UNUSUAL FIRE & EXPLOSION HAZARDS: Vapors may accumulate in inadequately ventilated or confined areas. Vapors may form explosive mixtures with air. Vapors may travel long distances. Flashback or Flame to the handling site may occur. Closed containers may explode when exposed to extreme heat. extreme heat. ***** SECTION V - HEALTH HAZARD DATA _____ -PERMISSIBLE EXPOSURE LEVEL: See section II (not established for product).

(cont.)

COURTAULDS AEROSPACE Material Safety Data Sheet for: 513X390

orase Orase	TOOTHER BUNK	SURE LEVEL: (cont.)	, «````````
erua PFE:	CTS OF OVERE	SORE DEVEL: (CONC.) XPOSURE:	
			· · · ·
	1 1 1 1 1		
	MEK		
2	an a		
4.	EYES:	MAY CAUSE BURNING, TEARING AND REDDENING, POSSIBLE	
		TRANSIENT CORNEAL CLOUDING.	
	SKIN:	PROLONGED EXPOSURE MAY CAUSE REDNESS, BURNING,	
		DRYING AND CRACKING OF SKIN.	1.00
	TINHVOWTON:	MAY CAUSE COUGHING, CHEST PAINS. THROAT IRRITATION. MAY CAUSE HEADACHES AND DIZZINESS; MAY BE ANESTHETIC	
	*	AND MAY CAUSE OTHER CENTRAL NERVOUS SYSTEM EFFECTS.	
		REVERSIBLE LIVER DAMAGE IS POSSIBLE AT HIGH DOSES.	
	INGESTION:	MAY CAUSE DROWSINESS, DIZZINESS, AND NAUSEA.	
	TOLUENE		
	i an		
	EYES:	MAY CAUSE BURNING, TEARING AND REDDENING.	
	SKIN:	PROLONGED EXPOSURE MAY CAUSE DRYING AND CRACKING OF	
÷.,	THURT ATTANT.	SKIN, AND POSSIBLE DERMATITIS. MAY CAUSE DIZZINESS, DROWSINESS AND FATIGUE. MAY	- A
	Alternation and the	CAUSE LIVER AND KINNEY DAMAGE.	
	INGESTION:	MAY CAUSE DROWSINESS. DIZZINESS AND NAUSEA.	n in the second s
	BFFECTS OF	(ONG-TERM (CHRONIC) EXPOSURE	
	COORDINATIO	ISTURBANCE IN MEMORY, THINKING ABILITY, EMOTIONS AND	
	COORDINATIO	 Model and the second secon second second sec	1.1
	THIS CHEMIC.	AL IS ON THE LIST ENTITLED "CHEMICALS KNOWN BY THE	
	STATE OF CA	LIFORNIA TO CAUSE REPRODUCTIVE TOXICITY".	1. A.
		en en fan de ferste fan de ferste en skiedte en de ferste fan de ferste fan de ferste ferste ferste ferste fer Ferste ferste	i din
	XYLENE		

	BYES:	MAY CAUSE BURNING. TEARING AND REDDENING.	
		PROLONGED EXPOSURE MAY CAUSE DRYING AND CRACKING	
		OF SKIN POSSIBLE DERMATITIS. THIS PRODUCT MAY BE	
		ABSORBED THROUGH THE SKIN.	
	THRAFWLTOM:	MAY CAUSE DIZZINESS, DROWSINESS AND FATIGUE. MAY CAUSE LIVER OF KIDNEY DAMAGE.	
	INGESTION:	MAY CAUSE IRRITATION OF THE DIGESTIVE TRACT. SIGNS	
	· · · ·	OF NERVOUS SYSTEM DEPRESSION (DROWSINESS, DIZINESS,	
- P		LOSS OF COORDINATION, AND FATIGUE).	
	A marine a	ASPIRATION HAZARD-THIS MATERIAL CAN ENTER LUNSS	
	(cont.)		

	COURTAU	LDS AEROS	SPACE	
Material	Safety 1	Data She	et for:	513X390

			V - HEALTH H		
a *		EXPOSURE: (cont DURING SWALLO INFLAMMATION A / EPICHLOROHY	WING OR VOMITING AND DAMAGE.	AND CAUSE LUN	G
	SKIN: INHALATION	MAY CAUSE SKI MAY CAUSE IRR	HANICAL IRRITATION N SENSITIZATION. ITATION TO RESPI ACUTE ORAL TOXIC	RATORY TRACT.	
	STRONTIUM (THROMATE *** C	ARCINOGE	N *** BY NTP	AND IARC
	HEXAVALENT "CHEMICALS	CHROMIUM COMPO KNOWN BY THE S	UNDS ARE ON THE TATE OF CALIFORN	LIST ENTITLED LA TO CAUSE CA	NCER".
	EYES: SKIN: INHALATION: INGESTION:	SKIN. SENSIT MAY CAUSE MUC ULCERS OF THE NASAL SEPTUM.	SSIBLE PAINLESS I IZATION IN SOME OUS MEMBRANE IRR NOSE, PERFORATIO JAUNDICE AND K	INDIVIDUALS. ITATION AND PR ON OF CARTILAG	NETRATING
	ISOPROPYL J	LCOHOL		· · ·	
	INHALATION	FLUSHING, HEA NAUSEA, VOMIT MAY CAUSE HEA	E AND THROAT IRE DACHE, DIZZINESS ING, NARCOSIS ANI DACHE, DIZZINESS ING, NARCOSIS, AN	, MENTAL DEPRES STHESIA AND CO MENTAL DEPRES	SSION, OMA. SSION.
	MAK				
		".			
	EYES: SKIN: INHALATION: INGESTION:	PROLONGED EXP OF SKIN. POS MAY CAUSE DIZ	NING, TEARING AN OSURE MAY CAUSE I SIBLE DERMATITIES ZINESS, DROWSINES WSINESS, DIZZINES	DRYING AND CRAD S. SS AND FATIGUE	
	(cont.)				gager 197 Anna Anna

COURTAULDS ABROSPACE Material Safety Data Sheet for: 513X390 SECTION V - HEALTH HAZARD DATA (cont.) -BFFECTS OF OVEREXPOSURE: (cont.) -BFFECTS OF OVEREXPOSURE: (cont.) -FIRST AID: Eyes: Flush with water for 15 minutes. Get medical attention. Skin: Wash with scap and water. Do not use solvents. Remove contaminated clothing and wash before reuse. If symptoms persist, get medical attention. Inhalation: Remove to fresh air from exposure. Give artificial respiration or cardiopulmonary resuscitation (CPR) if breathing is difficult, get medical attention. Ingestion: Get medical attention. SECTION VI - REACTIVITY DATA STABLITY: [] Unstable [x] Stable HAZARDOUS POLYMERIZATION: [] May occur and an an an [x] Will not occur -INCOMPATIBILITY None recognized unless noted below.
 -CONDITIONS TO AVOID: None recognized unless noted below.
 -HAZARDOUS DECOMPOSITION PRODUCTS: Products of combustion are hazardous including carbon dioxide and carbon monoxide. SECTION VII - SPILL OR LEAK PROCEDURES *S TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED Protect from ignition. Wear air supplied respirator for unventilated spill. Cover with absorbent material and scoop Unventified spiil. Cover with absorbent material and s into container. Clean residue with a suitable solvent. CERCLA RO FOR MEK IS 5,000 LBS. CERCLA RQ FOR TOLUENE IS 1,000 LBS. CERCLA RQ FOR XYLENE IS 1,000 LBS. CERCLA RQ FOR XYLENE IS 1,000 LBS. -WASTE DISPOSAL METHOD: When disposing of this material, ensure that it is packaged, stored, transported and otherwise managed in accordance with local, state and federal regulations. SECTION VIII - SPECIAL PROTECTION INFORMATION: ********************** . . -RESPIRATORY PROTECTION: When spraying or applying in any circumstances likely to produce airborne level of hazardous ingredients in excess of TLV, use an organic vapor cartridge or air-supplied respirator. VENTILATION: General ventilation to maintain vapors below TLV and PEL. - PROTECTIVE GLOVES : Solvent resistant gloves. During spray application, complete (cont.)

COURTAULDS AEROSPACE Material Safety Data Sheet for: 513X390 SECTION VIII - SPECIAL PROTECTION INFORMATION: (cont.) - PROTECTIVE GLOVES: (cont.) skin protection is required. -EYE PROTECTION: Goggles or full-face shield. -OTHER FROTECTIVE EQUIPMENT: Avoid skin contact by use of other protective clothing. Safety shower, eye bath and washing facilities should be available. SECTION IX - SPECIAL PRECAUTIONS - PRECAUTIONS TO BE TAKEN IN HAMPLING AND STORING: Keep container tightly closed. Isolate from heat, electrical equipment, sparks and flame. Do not store above 120 deg.F. -OTHER INFORMATION : Empty drums may contain explosive vapors. Do not cut, puncture or weld on or near drum. Vapors of this product are heavier than air and may collect in low or confined areas.

Bibliography

- Alexander, Bruce H., Harvey Checkoway, Laurence Wechsler, Nicholas J. Heyer, J. Michael Muhm, and Thomas P. O'Keefe. "Lung Cancer in Chromate-Exposed Aerospace Workers." <u>Journal of Occupational and Environmental Medicine</u> 38(12): 1253-1258 (1996).
- American Conference of Governmental Industrial Hygienists: Industrial Ventilation, A Manual of Recommended Practice. Cincinnati, Ohio, ACGIH.
- Bayvel, L. and Z. Orzechowski. <u>Liquid Atomization</u> Washington, D.C., Taylor and Francis, 1993.
- Carlton, Gary N. and Michael R. Flynn. "A Model to Estimate Worker Exposure to Spray Paint Mists." <u>Applied Occupational Environmental Hygiene</u> **12**(5): 375-382 (1997).
- -----. "Influence of Spray Painting Parameters on Breathing Zone Particle Size Distributions." <u>Applied Occupational Environmental Hygiene</u> **12**(11): 744-750 (1997).
- Chan, T. L., J.B. D'Arcy, and R.M. Schreck. "High Solids Paint Overspray Aerosols in a Spray Painting Booth: Particle Size Analysis and Scrubber Efficiency." American Industrial Hygiene Association Journal **51**(3): 411-417 (1986).
- Clapp, T. C., T. H. Umbreith, R.J. Meeker, D.S. Kosson, D. Gray, and M.A. Gallo. "Bioavailability of Lead and Chromium from Encapsulated Pigment Material." Bulletin of Environmental Contamination and Toxicology 46: 271-275 (1991).
- Clark, Mark M. <u>Transport Modeling for Environmental Engineers and Scientists</u>. New York, John Wiley & Sons, 1996.
- De Flora, S. and K.E. Wetterhahn (April 10-14, 1988). <u>Genotoxicity and metabolism of chromium compounds</u>. Third Hans Wolfgang Nurmberg Memorial Workshop on Toxic Metal Compounds, Golfo del Sole, Grossetto, Italy, Interrelation between Chemistry and Biology.
- -----. "Mechanisms of Chromium Metabolism and Genotoxicity." <u>Life Chemistry Reports</u> 7: 169-244 (1989).
- De Raeve, Hilde, Carlo Vandercasteele, Maurits Demedts, and Benoit Nemery. "Dermal and Respiratory Sensitization to Chromate in a Cement Floorer." <u>American</u> Journal of Industrial Medicine **34**: 169-176 (1998).
- Ensor, D. S., B.C. Krafthefer, and T.C. Ottney. "Changing Requirements for Air Filtration Test Standards." <u>ASHRAE Journal</u> **36**(6): 52-60 (1994).

- Fox, Joseph M. "Chromium Concentration Bias in the Particle Size Distribution of Primer Overspray." <u>Dept. of Systems and Engineering Management</u>. Wright-Patterson AFB, Ohio, Air Force Institute of Technology, 2000.
- IARC. <u>Some Organic Solvents, Resin Monomers and Related Compounds, Pigments and</u> Occupational Exposures in Paint Manufacture and Painting. Lyon,1989.
- IARC. Chromium, Nickel and Welding. Lyon, 1990.
- Johansson, A., B. Robertson, T. Curstedt, and P. Camner, P. "Rabbit lung after inhalation of hexa- and trivalent chromium." <u>Environm. Res.</u> **41**: 110-119 (1986).
- -----. "Alveolar macrophage abnormalities in rabbits exposed to low concentrations of trivalent chromium." <u>Environ. Res.</u> 44: 279-293 (1987).
- Jones, Ross E. "Hexavalent Chrome: Threshold Concept for Carcinogenicity." Biomedical and Environmental Sciences(3): 20-34 (1990).
- Kasprzak, K. S. "The Role of Oxidative Damage in Metal Carcinogenicity." Chemical Research Toxicology 4: 604-615 (1991).
- Klaassen, Curtis D. ed. <u>Casarett and Doull's Toxicology: The Basic Science of Poisons</u>, Fifth Edition New York: McGraw-Hill, 1996
- Korallus, U. <u>Biological activity of Chromium(VI) against Chromium(III) compounds:</u> <u>New aspects of biological monitoring.</u> Proceedings, Chromium Symposium, Industrial Health Foundation, Pittsburgh, (1986).
- Lachas, H. and others. "Determination of 17 trace elements in coal and ash reference materials by ICP-MS applied to milligram sample sizes." <u>Analyst, 124</u>: 177-184 (1998)
- Lefebvre, A. H. Atomization and Sprays. New York, Hemisphere Corporation, 1989.
- Levy, L. S., P.A. Martin, and P.L. Bidstrup. "Investigation of the Potential Carcinogenicity of a Range of Chromium Containing Materials on Rat Lung." <u>British Journal of Industrial Medicine</u> 43: 243-256 (1986).
- Lewalter J., and U. Korallus. <u>The significance of ascorbic acid and glutathione for</u> <u>chromate metabolism in man.</u> Third Hans Wolfgang Nurmberg Memorial Workshop on Toxic Metal Compounds (Interrelation between chemistry and Biology), April 10-14, 1988, Golfo del Sole, Grossetto, Italy, p. 43
- Lippmann, M. and R.B. Schlesinger. "Interspecies Comparisons of Particle Deposition and Mucociliary Clearance in Tracheobronchial Airways." Journal of Toxicology and Environmental Health 13: 441-469 (1984).

- Marple, Virgil A., and others. "Inertial, Gravitational, Centrifugal, and Thermal Collection Techniques" in <u>Aerosol Measurement.</u> Ed. Klaus Willeke and others. New York NY: Ban Nostrand Reinhold, 1993.
- Patierno, S. R., D. Banh, and J.R. Landolph. "Transformation of C3H/10T1/2 Mouse Embryo Cells to Focus Formation and Anchorage Independence by Insoluble Lead but not Soluble Calcium Chromate: Relationship to Mutagenesis and Internalization of Lead Chromate Particles." <u>Cancer Research</u>(48): 5280-5288 (1988).
- -----. "Soluble vs. Insoluble Hexavalent Chromate: Relationship of Mutation to in vitro Transformation and Particle Uptake." <u>Biological Trace Element Research</u> 21: 469-474 (1989).
- Petrilli, F. L. and S. De Flora, S. "Metabolic reduction of chromium as a threshold mechanism limiting its in vivo activity." <u>Sci. Total Environment</u> **71**: 357-364 (1988).
- Scicchitano, D. A. and A.E. Pegg, A.E. "Inhibition of O⁶-alkylguanine-DNAalkyltransferase by metals." <u>Mutat. Res.</u> **192**: 207-210 (1987).
- Singh, Jatinder, Diane L. Carlisle, Daryl E. Pritchard, and Steven R. Patierno. "Chromium-induced Genotoxicity and Apoptosis: Relationship to Chromium Carcinogenesis (Review)." <u>Oncology Reports</u> 5: 1307-1318 (1998).
- Srivastava, L., V.K. Jain, D.N. Kachru, and S.K. Tandon. "Comparative Toxic ity of Trivalent and Hexavalent Chromium V: Enzymatic Alterations in Rat Liver and Kidneys." <u>Industrial Health</u> 23: 89-94 (1985).
- West, John B. <u>Pulmonary Pathophysiology: The Essentials, Fifth Edition</u> Baltimore: Lippincott, Williams, and Wilkins, 1996.

Vita

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14. ABSTRACT Spray painting operations using chromate-containing primer paints produce particles which may expose workers to strontium chromate. Chromate contains hexavalent chromium ($Cr(VI)$) which is a confirmed human carcinogen. It is suspected that the smaller particles contain disproportionately less $Cr(VI)$ than larger particles. In order to determine if a bias in chromate content exists, paint particles were collected and separated based on particle size and the $Cr(VI)$ concentration was determined. Aviation primer paint from the DeSoto and Deft companies was sprayed in a booth and seven-stage cascade impactors were used to separate particles. The particles were grouped into fourteen distinct bins based on size within an overall range of 0.7 to 34.1 μ m mass median aerodynamic diameter. The total mass of dry paint collected in each bin was quantified and the paint was analyzed for $Cr(VI)$ mass. The $Cr(VI)$ mass (μ g) was divided by the mass of dry paint (μ g) collected to determine the percentage of $Cr(VI)$ per mass of dry paint. Smaller particles contained significantly less $Cr(VI)$ per mass of dry paint than larger particles. Paint sample particles smaller than 3 μ m contained 1.2 % and 1.8 % $Cr(VI)$ per mass of dry paint for DeSoto and Deft paints, respectively, which represents less than 30% of the $Cr(VI)$ mass expected.							
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