Document Revision Change Table

Revision Number	Revision Description	Revised By	Revision Date
New			
	Procedure Reviewed	G. Dawson	03/17
	Procedure Reviewed	G. Dawson	12/20

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1. PURPOSE

The purpose of this procedure is to ensure that all work activities associated with Hexavalent Chromium (Chromium (VI) or Cr(VI)) meet the requirements of all applicable OSHA Standards to prevent occupational exposure to Cr(VI).

2. DEFINITIONS

2.1. Action Level

An airborne concentration of Cr(VI) of 2.5 micrograms per cubic meter of air (2.5 $\mu g/m^3$) calculated as an 8-hour time-weighted average (TWA).

2.2. Authorized Person

Any person specifically authorized by the employer whose duties require the person to enter a regulated area.

2.3. Employee Exposure

Employee exposure to airborne Cr(VI), which would occur if the employee were not wearing respiratory protective equipment.

2.4. Hexavalent Chromium

Also referred to as Chromium (VI) or Cr(VI). Chromium with a valence of positive 6, in any form and in any compound.

2.5. Historical Monitoring Data

Data obtained during work operations conducted under workplace conditions closely resembling the processes, types of material, control methods, work practices, and environmental conditions that are in the current operations. (OSHA definition)

2.6. Objective Data

Data from industry-wide surveys or calculations based on the composition or chemical and physical properties of a substance demonstrating the employee exposure to Cr(VI) associated with a particular product or material or a specific process, operation, or activity. The data must reflect workplace conditions closely resembling the processes, types of material, control methods, work practices, and environmental conditions that are in the current operations. (OSHA definition)

2.7. Permissible Exposure Limit (PEL)

An airborne concentration of Cr(VI) in excess of 5 micrograms per cubic meter of air (5 µg/m^3) or .005 milligrams per cubic meter of air (5 mg/m^3) calculated as an 8-hour time weighted average (TWA).

2.8. Regulated Area

Any area, marked by BASF or a contractor employer, where airborne concentrations of Cr(VI) exceed or can reasonably be expected to exceed the permissible exposure limit.

3. SCOPE

This procedure applies to any work performed by Maintenance, Instrument, Electrical, Operations, or Contract personnel in any plant area where the potential for Cr(VI) exposure exists.

Potential for Cr(VI) exposure exists for the tasks such as:

- Hot work (torch cutting, welding) on metals. The higher the chromium content, the more likely the exposure to Cr(VI).
- Cutting, welding, or disturbing chromate-based paints.
- Handling catalysts that contain Cr(VI).
- Handling potassium dichromate, zinc chromate, or other chromate compounds in laboratories or manufacturing operations.
- Handling chromic acid (chromic trioxide).

If a task is not listed above and Cr(VI) exposure is suspected, contact EHS to determine if this procedure applies.

4. REQUIREMENTS

4.1. Employee Exposure Determination

4.1.1. BASF or contractor employers shall perform initial industrial hygiene monitoring to determine the 8 hour TWA exposure to Cr(VI) for any task where there is potential for Cr(VI) exposure. Monitoring shall be based on a sufficient number of personal breathing zone samples for the employee(s) expected to have the highest exposure to airborne Cr(VI).

4.1.2. Additional industrial hygiene monitoring shall be performed according to the following table:

Initial Monitoring Results	Additional Monitoring Requirements
< 10% of the PEL	None, unless job tasks or conditions change
10% to <50% of the PEL	Re-monitor in 24 months
50% to <100% of the PEL	Re-monitor at least every 6 months
PEL or above	Re-monitor at least every 3 months

4.1.3. Additional industrial hygiene monitoring shall also be performed if there are any changes in processes, raw materials, equipment, personnel, work practices, or control methods that may result in new or additional exposures to Cr(VI).

4.1.4. In order to determine employee exposure, historical monitoring data or objective data may be used instead of (or in addition to) the data from air monitoring described in 4.1.1 – 4.1.3, above. See the definitions of historical monitoring data and objective data in Section 2.0, above.

4.1.5. If industrial hygiene monitoring data, historical monitoring data, or objective data is not available, PPE and/or engineering controls shall be utilized to protect workers until data becomes available. The EHS coordinator shall assist with the selection of PPE.

4.2. Requirements if Employee Exposure is Determined to Exceed the PEL

4.2.1. All affected employees shall be notified of the employee exposure results within 15 working days. The notification shall include the corrective action being taken to reduce employee exposure to or below the PEL.

4.2.2. Regulated areas shall be established. Access to regulated areas shall be limited to authorized persons. Regulated areas shall be marked in a manner that adequately establishes and alerts employees of the boundaries. For example, barricades with signs or tags stating “Warning – Do Not Enter – Hexavalent Chromium Hazard” should be used.

4.2.3. Engineering and work practice controls shall be implemented, if feasible, if employee exposures exceed the PEL for a specific task or area for 30 or more days in 12 consecutive months.

4.2.4. NIOSH approved respiratory protection shall be provided to affected employees. The EHS coordinator shall assist with the selection of respiratory protection.

4.3. Additional Requirements for Any Task Where Cr(VI) is Present

4.3.1. When a hazard is present from skin or eye contact with Cr(VI):

- Personal protective clothing and equipment shall be provided and worn.
- Employees must remove all contaminated protective clothing and equipment at the end of the shift or task, whichever comes first.
- The contaminated protective clothing and equipment must be left at the site for proper disposal or professional cleaning or laundering.
- Contaminated protective clothing and equipment that will be discarded or professionally cleaned/laundered shall be transported in sealed and impermeable bags or containers. The bags or containers shall be labeled, “Contents are contaminated with hexavalent chromium. Immediate health effects may include irritation of skin, eyes, respiratory tract, and gastrointestinal tract. Cancer hazard.”
- Employees or contractors shall not be allowed to clean or launder equipment or PPE that is contaminated with Cr(VI) unless they have been trained in the hazards of Cr(VI) and the proper handling of contaminated PPE/equipment.
- Cr(VI) may not be removed from contaminated clothing and equipment by blowing, shaking, or other means that may disperse the Cr(VI).
- Change rooms that are designed to prevent contamination of street clothing shall be provided.
- Hand and skin washing facilities shall be provided and shall be used at the end of the work shift and prior to eating, drinking, smoking, chewing tobacco or gum, applying cosmetics, or using the toilet.
- Eating/drinking areas shall be provided. These areas may not be entered unless surface Cr(VI) contamination has been removed from clothing and equipment by methods that do not disperse Cr(VI) (such as blowing or shaking).
- Change rooms, hand/skin washing facilities, and eating/drinking areas shall comply with OSHA 29 CFR 1910.141
- Food, water, beverages, tobacco products, gum, and cosmetics may not be used, stored, or brought into regulated areas, as defined above, or areas where there is potential skin or eye contact with Cr(VI).

4.3.2. Housekeeping procedures shall be implemented and shall include, at minimum, the following practices:

- All surfaces must be maintained as free as practicable of accumulations of Cr(VI).
- All spills and releases of Cr(VI) containing material must be cleaned up promptly.

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- HEPA-filter vacuuming or other methods that minimize Cr(VI) exposure shall be used for surface cleaning and spill clean up. Dry shoveling, dry sweeping, or dry brushing may only be used when HEPA-filter vacuuming or other methods have been tried and found to be ineffective.
- Blowing, shaking, compressed air, or other methods that might disperse Cr(VI) shall not be used to remove Cr(VI) from any surface.
- Waste, scrap, debris and other materials contaminated with Cr(VI) shall be sealed in impermeable containers and labeled, "Contents are contaminated with hexavalent chromium. Immediate health effects may include irritation of skin, eyes, respiratory tract, and gastrointestinal tract. Cancer hazard."

4.3.3. Medical surveillance shall be available to employees, if:

- They are (or may be) exposed to Cr(VI) at or above the action level for 30 or more days a year;
- They experience signs/symptoms of Cr(VI) exposure (blistering lesions, redness or itchiness of exposed skin, shortness of breath or wheezing that worsens at work, nosebleeds, a whistling sound while inhaling or exhaling); or
- They are exposed in an emergency (an uncontrolled release that results in significant and unexpected exposure).

4.3.4. Information on the hazards of Cr(VI) shall be included in the Site HazCom training course.

Also, information on the contents of OSHA 29 CFR 1910.1026 shall be included. If medical surveillance is required, then HazCom training shall also include the purpose and description of the medical surveillance program. An electronic or paper copy of OSHA 29 CFR 1910.1026 shall be supplied to any employee, upon request.

4.3.5. The following records shall be maintained:

Type of Record	Responsible Person or Group
Industrial hygiene monitoring data	Texas EHS Hub and/or contractor EHS group(s)
Historical monitoring data	Texas EHS Hub and/or contractor EHS group(s)
Objective data	Texas EHS Hub and/or contractor EHS group(s)
Medical surveillance	BASF corporate medical group and the site medical provider and/or contractor medical provider(s)

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5. RESPONSIBILITIES

5.1. Site Leadership Team

Has primary responsibility for implementation of this procedure.

5.2. Health and Safety Team Leader

Has primary responsibility for the initiation, re-issuance, administration, and/or interpretation of this procedure.

5.3. Employees and Contractors

Have primary responsibility for adherence to procedure including identifying deficiencies in the procedure, and identifying, reporting and correcting activities not in compliance with the procedure.

6. RELATED DOCUMENTS

OSHA 29 CFR 1910.1026 and 1926.1126 – Chromium (VI)
OSHA 29 CFR 1910.141 – Sanitation
BC009.036 – Hexavalent Chromium Medical Surveillance
Beaumont Site Procedure BMEHS-002.031 - Metal Welding, Thermal Cutting, Grinding – Respiratory Protection and Ventilation
Beaumont Site Procedure BMEHS-002.032 - Respiratory Protection

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