

Material Safety Data Sheet

Ammonium dichromate

ACC# 01210

Section 1 - Chemical Product and Company Identification

MSDS Name: Ammonium dichromate

Catalog Numbers: AC208810000, AC208811000, AC208815000, S70636, S75026, S75027, A644-100, A644-12, A644-212, A644-50, A644-500, S70636-1

Synonyms: Ammonium bichromate; Ammonium dichromate(VI).

Company Identification:

Fisher Scientific
1 Reagent Lane
Fair Lawn, NJ 07410

For information, call: 201-796-7100

Emergency Number: 201-796-7100

For CHEMTREC assistance, call: 800-424-9300

For International CHEMTREC assistance, call: 703-527-3887

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
7789-09-5	Ammonium dichromate	99	232-143-1

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: orange to red crystals.

Danger! Risk of explosion by shock, friction, fire or other sources of ignition. Danger of serious damage to health by prolonged exposure through inhalation. May be fatal if inhaled or swallowed. Strong oxidizer. Contact with other material may cause a fire. Causes burns by all exposure routes. Harmful if absorbed through the skin. May cause allergic respiratory and skin reaction. May impair fertility. May cause harm to the unborn child. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Cancer hazard. May cause heritable genetic damage. May cause sensitization by inhalation and by skin contact.

Target Organs: Kidneys, liver, lungs, respiratory system, gastrointestinal system, eyes, reproductive system, skin.

Potential Health Effects

Eye: Causes eye burns. May cause blindness. May cause redness, pain, blurred vision and possible eye damage.

Skin: Harmful if absorbed through the skin. Causes skin burns. May cause skin sensitization, an allergic reaction, which becomes evident upon re-exposure to this material. May cause deep, penetrating ulcers of the skin. May cause dermatitis. 4-hour exposure to solid material showed no corrosion but well-defined erythema in 2/6 animals. Solid material moistened with physiological saline produced well-defined erythema and edema in all 6 animals, 2 of which showed necrotic focal sites. (Bayer)

Ingestion: May be fatal if swallowed. Poison by ingestion. Causes gastrointestinal tract burns. May cause circulatory system failure.

Inhalation: May be fatal if inhaled. May cause asthmatic attacks due to allergic sensitization of the respiratory tract. May cause ulceration and perforation of the nasal septum if inhaled in excessive quantities. Causes chemical burns to the respiratory tract.

Chronic: Prolonged or repeated inhalation may cause nosebleeds, nasal congestion, erosion of the teeth, perforation of the nasal septum, chest pain and bronchitis. Prolonged or repeated eye contact may cause conjunctivitis. Prolonged or repeated skin contact may cause sensitization dermatitis and possible destruction and/or ulceration. May cause liver and kidney damage. May cause cancer in humans. Possible risk of harm to the unborn child. May impair fertility.

Section 4 - First Aid Measures

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid immediately.

Skin: Get medical aid immediately. Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.

Ingestion: Get medical aid immediately. Do NOT induce vomiting. If conscious and alert, rinse mouth and drink 2-4 cupfuls of milk or water. Call a poison control center.

Inhalation: If breathing has ceased apply artificial respiration using oxygen and a suitable mechanical device such as a bag and a mask. POISON material. If inhaled, get medical aid immediately. Remove victim to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.

Notes to Physician: Persons with asthma, allergies, and known sensitization to chromic acid or chromates may be at increased risk from exposure to this product. Treat symptomatically and supportively.

Section 5 - Fire Fighting Measures

General Information: Strong oxidizer. Contact with other material may cause fire. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Wear appropriate protective clothing to prevent contact with skin and eyes. Wear a self-contained breathing apparatus (SCBA) to prevent contact with thermal decomposition products. This material is an explosion hazard when exposed to heat, mechanical shock, or friction. Explosive decomposition may occur under fire conditions.

Extinguishing Media: Use water only! Contact professional fire-fighters immediately. Cool containers with flooding quantities of water until well after fire is out. Do NOT use dry chemicals, CO₂, Halon or foams.

Flash Point: Not available.

Autoignition Temperature: 218 deg C (424.40 deg F)

Explosion Limits, Lower:Not available.

Upper: Not available.

NFPA Rating: (estimated) Health: 3; Flammability: 1; Instability: 2; Special Hazard: OX

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks: Avoid runoff into storm sewers and ditches which lead to waterways. Clean up spills immediately, observing precautions in the Protective Equipment section. Avoid generating dusty conditions. Remove all sources of ignition. Carefully scoop up and place into appropriate disposal container. Isolate area and deny entry. Provide ventilation. Do not use combustible materials such as paper towels to clean up spill. Keep combustibles (wood, paper, oil, etc.,) away from spilled material.

Section 7 - Handling and Storage

Handling: Use only in a well-ventilated area. Minimize dust generation and accumulation. Do not breathe dust, mist, or vapor. Do not get in eyes, on skin, or on clothing. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep container tightly closed. Avoid contact with clothing and other combustible materials. Do not ingest or inhale. Use only in a chemical fume hood. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames. Keep away from heat, sparks and flame.

Storage: Keep away from heat, sparks, and flame. Do not store near combustible materials. Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. Heat can cause thermal decomposition and pressure build-up inside containers. Material can explode if dry.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use only under a chemical fume hood. Use adequate general or local explosion-proof ventilation to keep airborne levels to acceptable levels.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Ammonium dichromate	0.05 mg/m ³ TWA (as Cr) (listed under Chromium (VI) compounds- water soluble).	0.001 mg/m ³ TWA (as Cr) (listed under Chromates).15 mg/m ³ IDLH (as Cr(VI)) (listed under Chromates).	5 æg/m ³ TWA (listed under Chromium (VI) compounds).0.1 mg/m ³ Ceiling (as CrO ₃ , applies to any operations or sectors for which the H exavalent Chromium standard [29 CFR 1910.1026] is stayed or is otherwise not in effect) (listed under Chromates).2.5 æg/m ³ Action Level (as Cr.); 5 æg/m ³ TWA (as Cr. Cancer hazard - See 29 CFR 1910.1026) (listed under Chromium (VI) compounds).

OSHA Vacated PELs: Ammonium dichromate: No OSHA Vacated PELs are listed for this chemical.

Personal Protective Equipment

Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin: Wear appropriate protective gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respirators: Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Section 9 - Physical and Chemical Properties

Physical State: Crystals

Appearance: orange to red

Odor: odorless

pH: 3.45 for 10% soln.

Vapor Pressure: Not available.

Vapor Density: Not available.

Evaporation Rate:Not available.

Viscosity: Not available.

Boiling Point: Not available.

Freezing/Melting Point:170 deg C

Decomposition Temperature:170 deg C

Solubility: 360 g/l (20°C)

Specific Gravity/Density:2.1500

Molecular Formula:(NH₄)₂Cr₂O₇

Molecular Weight:252.06

Section 10 - Stability and Reactivity

Chemical Stability: Heating may cause an explosion.

Conditions to Avoid: Ignition sources, dust generation, excess heat, combustible materials, mechanical shock, friction.

Incompatibilities with Other Materials: Reducing agents, acids, bases, alcohols, hydrazine, sodium nitrate, ethylene glycol, carbides.

Hazardous Decomposition Products: Oxides of nitrogen, nitrogen gas, toxic chromium oxide fumes.

Hazardous Polymerization: Has not been reported

Section 11 - Toxicological Information

RTECS#:

CAS# 7789-09-5; HX7650000; HX7660000

LD50/LC50:

Not available.

Oral, rat: LD50 = 67.5 mg/kg; Inhalation, rat: LC50 = 0.156 mg/l/4H; Dermal, rabbit: LD50 = 1640 mg/kg (reported by Bayer)

Carcinogenicity:

CAS# 7789-09-5:

- **ACGIH:** A1 - Confirmed Human Carcinogen (listed as 'Chromium (VI) compounds- water soluble').
- **California:** carcinogen, initial date 2/27/87 (listed as Chromium (VI) compounds).
- **NTP:** Known carcinogen (listed as Chromium (VI) compounds).
- **IARC:** Group 1 carcinogen

Epidemiology: Certain hexavalent chromium compounds have been demonstrated to be carcinogenic on the basis of epidemiological investigations on workers and experimental studies in animals. Hexavalent chromium compounds have been said to also cause kidney damage in workers where absorption through damaged skin has occurred.

Teratogenicity: See actual entry in RTECS for complete information.

Reproductive Effects: May impair fertility.

Mutagenicity: DNA Repair: Salmonella typhimurium = 50 mmol/L.; DNA Repair: Bacillus subtilis = 50 mmol/L.

Neurotoxicity: No information found

Other Studies:

Section 12 - Ecological Information

Ecotoxicity: Fish: Mosquito Fish: LC50 = 136 mg/L; 96 Hr; Unspecified Fish: Mosquito Fish: LC50 = 212 mg/L; 48 Hr; Unspecified Chromium in soil can be transported to the atmosphere by way of aerosol formation. Chromium is also transported from soil through runoff and leaching of water. Runoff could remove both chromium ions and bulk precipitates of chromium, with final deposition on either a different land area or a water body. Chromium is present usually as Cr(III) in the soil and is characterized by its lack of mobility, except in cases where Cr(VI) is involved. Chromium(VI) of natural origin is rarely found.

Environmental: Most of the chromium in surface waters may be present in particulate form as sediment. Some of the particulate chromium would remain as suspended matter and ultimately be deposited in sediments. Trout can accumulate hexavalent chromium even at levels of 0.001 ppm. Barley absorbs chromium. Concentration factors for chromium: Marine plants 2000 times; freshwater and brown algae concentrate 100-500 times; Marine invertebrates 2000 times; Marine fish 400 times; and Freshwater fish 200 times.

Physical: No information available.

Other: Do not empty into drains.

Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

RCRA P-Series: None listed.

RCRA U-Series: None listed.

Section 14 - Transport Information

	US DOT	Canada TDG
Shipping Name:	AMMONIUM DICHROMATE	AMMONIUM DICHROMATE
Hazard Class:	5.1	5.1
UN Number:	UN1439	UN1439
Packing Group:	II	II

Section 15 - Regulatory Information

US FEDERAL

TSCA

CAS# 7789-09-5 is listed on the TSCA inventory.

Health & Safety Reporting List

None of the chemicals are on the Health & Safety Reporting List.

Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

Section 12b

None of the chemicals are listed under TSCA Section 12b.

TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

CERCLA Hazardous Substances and corresponding RQs

CAS# 7789-09-5: 10 lb final RQ; 4.54 kg final RQ

SARA Section 302 Extremely Hazardous Substances

None of the chemicals in this product have a TPQ.

SARA Codes

CAS # 7789-09-5: immediate, delayed, fire.

Section 313

This material contains Ammonium dichromate (listed as Chromium (VI) compounds), 99%, (CAS# 7789-09-5) which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

Clean Air Act:

This material does not contain any hazardous air pollutants.

This material does not contain any Class 1 Ozone depletors.

This material does not contain any Class 2 Ozone depletors.

Clean Water Act:

CAS# 7789-09-5 is listed as a Hazardous Substance under the CWA.

None of the chemicals in this product are listed as Priority Pollutants under the CWA.

None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.

STATE

CAS# 7789-09-5 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, (listed as Chromium (VI) compounds- water soluble), Minnesota, (listed as Chromium (VI) compounds), Massachusetts.

California Prop 65

The following statement(s) is(are) made in order to comply with the California Safe Drinking Water Act:

WARNING: This product contains Ammonium dichromate, listed as 'Chromium (VI) compounds', a chemical known to the state of California to cause cancer.

California No Significant Risk Level: None of the chemicals in this product are listed.

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols:

T+ N E

Risk Phrases:

R 2 Risk of explosion by shock, friction, fire or other sources of ignition.

R 21 Harmful in contact with skin.

R 25 Toxic if swallowed.

- R 26 Very toxic by inhalation.
- R 34 Causes burns.
- R 42/43 May cause sensitization by inhalation and skin contact.
- R 45 May cause cancer.
- R 46 May cause heritable genetic damage.
- R 8 Contact with combustible material may cause fire.
- R 48/23 Toxic : danger of serious damage to health by prolonged exposure through inhalation.
- R 60 May impair fertility.
- R 61 May cause harm to the unborn child.
- R 50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety Phrases:

- S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
- S 53 Avoid exposure - obtain special instructions before use.
- S 60 This material and its container must be disposed of as hazardous waste.
- S 61 Avoid release to the environment. Refer to special instructions /safety data sheets.

WGK (Water Danger/Protection)

CAS# 7789-09-5: 3

Canada - DSL/NDSL

CAS# 7789-09-5 is listed on Canada's DSL List.

Canada - WHMIS

This product has a WHMIS classification of C, F, D1A, D2A.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

Canadian Ingredient Disclosure List

CAS# 7789-09-5 is listed on the Canadian Ingredient Disclosure List.

Section 16 - Additional Information

MSDS Creation Date: 7/19/1999

Revision #6 Date: 6/18/2007

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Fisher be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Fisher has been advised of the possibility of such damages.