SAFETY DATA SHEET

1. IDENTIFICATION

Product identifier

Product code: A1179
Product Name: AMMONIUM DICHROMATE, PURIFIED

Other means of identification

Synonyms:
- Ammonium bichromate
- Dichromic acid, diammonium salt
- Diammonium dichromate
- Chromic acid, diammonium salt

CAS #:
- 7789-09-5

RTECS #:
- HX7650000

CI#:
- Not available

Recommended use of the chemical and restrictions on use

Recommended use:

Uses advised against:
- No information available

Supplier:
- Spectrum Chemical Mfg. Corp
  14422 South San Pedro St.
  Gardena, CA  90248
  (310) 516-8000

Order Online At:
- https://www.spectrumchemical.com

Emergency telephone number
- Chemtrec 1-800-424-9300

Contact Person:
- Martin LaBenz (West Coast)
- Ibad Tirmiz (East Coast)

2. HAZARDS IDENTIFICATION

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

<table>
<thead>
<tr>
<th>Toxicity</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute toxicity - Oral</td>
<td>Category 3</td>
</tr>
<tr>
<td>Acute toxicity - Dermal</td>
<td>Category 4</td>
</tr>
<tr>
<td>Acute toxicity - Inhalation (Gases)</td>
<td>Category 2</td>
</tr>
<tr>
<td>Acute toxicity - Inhalation (Dusts/Mists)</td>
<td>Category 2</td>
</tr>
<tr>
<td>Skin corrosion/irritation</td>
<td>Category 1</td>
</tr>
<tr>
<td>Serious eye damage/eye irritation</td>
<td>Category 1</td>
</tr>
<tr>
<td>Respiratory sensitization</td>
<td>Category 1</td>
</tr>
<tr>
<td>Skin sensitization</td>
<td>Category 1</td>
</tr>
<tr>
<td>Germ cell mutagenicity</td>
<td>Category 1B</td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td>Category 1A</td>
</tr>
<tr>
<td>Reproductive toxicity</td>
<td>Category 1B</td>
</tr>
</tbody>
</table>
Specific target organ toxicity (repeated exposure) Category 1
Oxidizing solids Category 2

Label elements

Danger

Hazard statements
Toxic if swallowed
Harmful in contact with skin
Fatal if inhaled
Causes severe skin burns and eye damage
May cause allergy or asthma symptoms or breathing difficulties if inhaled
May cause an allergic skin reaction
May cause genetic defects
May cause cancer
May damage fertility or the unborn child
Causes damage to organs through prolonged or repeated exposure
May intensify fire; oxidizer

Hazards not otherwise classified (HNOC)
Not Applicable

Other hazards
Not available

Product code: A1179
Product name: AMMONIUM DICHROMATE, PURIFIED
Precautionary Statements - Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Wear protective gloves/protective clothing/eye protection/face protection
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Do not breathe dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area
Wear respiratory protection
In case of inadequate ventilation wear respiratory protection
Contaminated work clothing should not be allowed out of the workplace
Wear protective gloves
Keep away from heat/sparks/open flames/hot surfaces. — No smoking
Keep/Store away from clothing/ .? /combustible materials
Take any precaution to avoid mixing with combustibles .?

Precautionary Statements - Response
Specific treatment (see .? on this label)
Specific measures (see .? on this label)
Specific treatment is urgent (see .? on this label)
Immediately call a POISON CENTER or doctor/physician
Specific treatment (see .? on this label)
IN CASE OF FIRE: Use water to extinguish. Do not use dry chemicals or foams. CO₂ or Halon may provide limited control.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Immediately call a POISON CENTER or doctor/physician.
Call a POISON CENTER or doctor/physician if you feel unwell
Wash contaminated clothing before reuse
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
If skin irritation or rash occurs: Get medical advice/attention
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/physician.
IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
Rinse mouth
Do NOT induce vomiting

Precautionary Statements - Storage
Store locked up
Store in a well-ventilated place. Keep container tightly closed

Precautionary Statements - Disposal
Dispose of contents/container to an approved waste disposal plant

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Weight %</th>
<th>Trade Secret</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium Dichromate</td>
<td>7789-09-5</td>
<td>100</td>
<td>*</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

First aid measures
General Advice: Poison information centers in each State capital city can provide additional assistance for scheduled poisons (13 1126). Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves. First aider needs to protect himself.
4. FIRST AID MEASURES

Skin Contact: Toxic in contact with skin. Wash off immediately with soap and plenty of water. Continue flushing with plenty of water for at least 15 minutes. Remove all contaminated clothes and shoes. Immediate medical attention is required. Call a physician or Poison Control Centre immediately.

Eye Contact: Flush eyes with water for 15 minutes. Immediate medical attention is required. Call a physician immediately.

Inhalation: Toxic by inhalation. WARNING! It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled or ingested material is toxic, infectious or corrosive. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required.

Ingestion: Toxic if swallowed. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Immediate medical attention is required. Call a physician or Poison Control Center immediately.

Most important symptoms and effects, both acute and delayed

Symptoms Fatal if inhaled. Toxic if swallowed. Harmful in contact with skin. Causes skin and eye burns. Causes damage to organs through prolonged or repeated exposure. May damage fertility or the unborn child. May cause sensitization by inhalation and skin contact. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause allergic skin reaction. May cause cancer. May cause heritable genetic damage in humans. May cause respiratory irritation. May cause irritation to mucous membranes. May cause chemical burns to the respiratory tract. It may affect the kidneys. Renal failure. It may affect the blood. May affect the liver. Chronic exposure may affect liver, kidneys/urinary system, and blood.

Indication of any immediate medical attention and special treatment needed

Notes to Physician: Treat symptomatically

Protection of first-aiders

First-Aid Providers: Avoid exposure to blood or body fluids. Wear gloves and other necessary protective clothing. Dispose of contaminated clothing and equipment as bio-hazardous waste

5. FIRE-FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media: Water. CO2 may be of no value in extinguishing fires involving oxidizers and may only provide limited control.


Specific hazards arising from the chemical

Hazardous Combustion Products: Ammonia, Chromic oxides, Nitrogen oxides

Specific hazards: Oxidizer. Keep away from combustible materials (wood, paper, oil, clothing, etc.) The product is not flammable, but it may cause fire when in contact with other material Contact with combustible or organic materials may cause fire Will accelerate burning when involved in a fire Container explosion may occur under fire conditions or when heated

Special Protective Actions for Firefighters

Product code: A1179

Product name: AMMONIUM DICHROMATE, PURIFIED
Specific Methods: For large fires, flood fire area with water from a distance. Cool affected containers with flooding quantities of water. Do not get water inside containers. DO NOT use combustible materials such as sawdust.

Special Protective Equipment for Firefighters: As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal Precautions: Keep people away from and upwind of spill/leak. Ensure adequate ventilation. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Avoid contact with skin, eyes and clothing. Wear personal protective equipment. Avoid dust formation. Remove all sources of ignition. Keep combustibles (wood, paper, oil, clothing, etc.) away from spilled material.

Environmental precautions: Prevent further leakage or spillage if safe to do so. Prevent product from entering drains. Prevent entry into waterways, sewers.

Methods and material for containment and cleaning up

Methods for containment: Stop leak if you can do it without risk. Cover with plastic sheet to prevent spreading.

Methods for cleaning up: Sweep up and shovel. Use appropriate tools to put the spilled material in a suitable chemical waste disposal container. Do not use combustible materials such as paper towels, sawdust, clothing, etc. to clean up spill. Clean contaminated surface thoroughly.

7. HANDLING AND STORAGE

Precautions for safe handling

Technical Measures/Precautions: Provide sufficient air exchange and/or exhaust in work rooms. Avoid dust formation. Keep away from open flames, hot surfaces and sources of ignition. Keep away from incompatible materials. All equipment used when handling the product must be grounded.

Safe Handling Advice: Wear personal protective equipment. Avoid contact with skin, eyes and clothing. Use only in well-ventilated areas. Do not breathe vapours/dust. Do not ingest. When using do not smoke. Keep away from combustible material. Keep away from heat and sources of ignition. Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities

Technical Measures/Storage Conditions: Keep container tightly closed in a dry and well-ventilated place. Do not store near combustible materials. Store at room temperature in the original container. Store away from incompatible materials. Store in a segregated and approved area.


8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Product code: A1179
Product name: AMMONIUM DICHROMATE, PURIFIED
National occupational exposure limits

### United States

<table>
<thead>
<tr>
<th>Components</th>
<th>OSHA</th>
<th>NIOSH</th>
<th>ACGIH</th>
<th>AIHA WHEEL</th>
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</thead>
<tbody>
<tr>
<td>Ammonium Dichromate</td>
<td>0.1 mg/m³ Ceiling</td>
<td>0.0002 mg/m³ TWA (as Cr)</td>
<td>0.05 mg/m³ TWA</td>
<td>None</td>
</tr>
<tr>
<td>7789-09-5</td>
<td>5 ug/m³ TWA</td>
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<td></td>
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</table>

### Canada

<table>
<thead>
<tr>
<th>Components</th>
<th>Alberta</th>
<th>British Columbia</th>
<th>Ontario</th>
<th>Quebec</th>
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</thead>
<tbody>
<tr>
<td>Ammonium Dichromate</td>
<td>0.05 mg/m³ TWA (as Cr)</td>
<td>0.1 mg/m³ Ceiling (as Cr)</td>
<td>0.05 mg/m³ TWA (as Cr)</td>
<td>0.05 mg/m³ TWAEV (as Cr)</td>
</tr>
<tr>
<td>7789-09-5</td>
<td></td>
<td>0.025 mg/m³ TWA (as Cr)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Australia and Mexico

<table>
<thead>
<tr>
<th>Components</th>
<th>Australia</th>
<th>Mexico</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium Dichromate</td>
<td>0.05 mg/m³ TWA (as Cr)</td>
<td>0.05 mg/m³ TWA</td>
</tr>
<tr>
<td>7789-09-5</td>
<td></td>
<td>0.5 mg/m³ TWA LMPE-PPT</td>
</tr>
</tbody>
</table>

### Appropriate engineering controls

**Engineering measures to reduce exposure:**

Ensure adequate ventilation, especially in confined areas. Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

### Individual protection measures, such as personal protective equipment

**Personal Protective Equipment**

- **Eye protection:** Goggles.
- **Skin and body protection:** Long sleeved clothing. Chemical resistant apron. Gloves.
- **Respiratory protection:** Be sure to use an approved/certified respirator or equivalent. Wear respirator with dust filter.
- **Hygiene measures:** Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product. When using, do not eat, drink or smoke.

### 9. PHYSICAL AND CHEMICAL PROPERTIES
## 9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Physical state:</th>
<th>Appearance:</th>
<th>Color:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Odor:</th>
<th>Taste</th>
<th>Formula:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Odorless.</td>
<td>No information available</td>
<td>(NH₄)₂CrO₇</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Molecular/Formula weight:</th>
<th>Flammability:</th>
<th>Flash point (°C):</th>
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</thead>
<tbody>
<tr>
<td>252.10 g/mol</td>
<td>Oxidizer</td>
<td>No data available</td>
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<table>
<thead>
<tr>
<th>Flashpoint (°C/°F):</th>
<th>Flash Point Tested according to:</th>
<th>Autoignition Temperature (°C/°F):</th>
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</thead>
<tbody>
<tr>
<td>No information available.</td>
<td>Not available</td>
<td>190-225°C/374-437°F</td>
</tr>
<tr>
<td></td>
<td></td>
<td>218°C/424°F</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Lower Explosion Limit (%):</th>
<th>Upper Explosion Limit (%):</th>
</tr>
</thead>
<tbody>
<tr>
<td>No information available.</td>
<td>No information available.</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Melting point/range(°C/°F):</th>
<th>Boiling point/range(°C/°F):</th>
<th>Decomposition temperature(°C/°F):</th>
</tr>
</thead>
<tbody>
<tr>
<td>170°C/338°F</td>
<td>No information available.</td>
<td>180°C/356°F</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bulk density:</th>
<th>Density (g/cm³):</th>
<th>Specific gravity:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1000 kg/m³</td>
<td>2.15</td>
<td>No information available.</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Vapor pressure @ 20°C (kPa):</th>
<th>Evaporation rate:</th>
<th>Vapor density:</th>
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</thead>
<tbody>
<tr>
<td>No information available.</td>
<td>No information available.</td>
<td>8.7</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>VOC content (g/L):</th>
<th>Odor threshold (ppm):</th>
<th>Partition coefficient (n-octanol/water):</th>
</tr>
</thead>
<tbody>
<tr>
<td>No information available.</td>
<td>No information available.</td>
<td>No information available.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Viscosity:</th>
<th>Miscibility:</th>
<th>Solubility:</th>
</tr>
</thead>
<tbody>
<tr>
<td>No information available.</td>
<td>No information available.</td>
<td>Soluble in Water</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Soluble in Alcohol</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Insoluble in Acetone</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Physical state:</th>
<th>Odor:</th>
<th>Formula:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solid.</td>
<td>Odorless.</td>
<td>(NH₄)₂CrO₇</td>
</tr>
</tbody>
</table>

## 10. STABILITY AND REACTIVITY

### Reactivity
- Oxidizer. Reacts with reducing agents, organic material, combustible materials, and powdered metals.
- Incompatible with strong bases, hydrazine, carbide, acids, alcohols, ethylene glycol, and mercury cyanide.

### Chemical stability
- Stability: Stable under recommended storage conditions.
- Possibility of Hazardous Reactions: Hazardous polymerization does not occur.
- Conditions to avoid: Avoid dust formation. Contact with combustible materials (wood, paper, oil, clothing, etc.). Incompatible materials.
- Other Information
  - Corrosivity: No information available.
11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Principal Routes of Exposure:
Ingestion. Inhalation. Skin. Eyes.

Acute Toxicity

Component Information

Ammonium Dichromate - 7789-09-5
LD50/oral/rat = 48 mg/kg Oral LD50 Rat
80 mg/kg oral LD50 rat
53 mg/kg oral LD50 rat
LD50/oral/mouse = No information available
LD50/dermal/rat = No information available
LD50/dermal/rabbit = 1640 mg/kg Dermal LD50 Rabbit
1860 mg/kg dermal LD50 rabbit
LC50/inhalation/rat = 0.156 mg/L Inhalation LC50 Rat 4 h
0.2 mg/L inhalation LC50 rat 4h
LC50/inhalation/mouse = No information available
Other LD50 or LC50 information = No information available

Product Information

LD50/oral/rat =
VALUE- Acute Tox Oral = 48mg/kg

LD50/oral/mouse =
Value - Acute Tox Oral = No information available

LD50/dermal/rabbit
VALUE-Acute Tox Dermal = 1640mg/kg

LD50/dermal/rat
VALUE -Acute Tox Dermal = No information available

LC50/inhalation/rat
VALUE-Vapor = No information available
VALUE-Gas = No information available
VALUE-Dust/Mist = 0.156mg/l (4-hr.)

LC50/Inhalation/mouse
VALUE-Vapor = No information available
VALUE - Gas = No information available
VALUE - Dust/Mist = No information available

Symptoms

Skin Contact: Harmful if absorbed through skin. Causes severe irritation and burns. May cause deep penetrating ulcers of the skin. May cause allergic skin reaction.

Eye Contact: Causes severe irritation and burns. Causes serious eye damage.. Eye contact may cause eye corrosion or ulceration.

Product code: A1179
Inhalation  
Fatal if inhaled. May cause irritation of the respiratory tract and mucous membranes irritation. May cause nose, throat, and lung irritation. May cause chemical burns to the respiratory tract.

Ingestion  
Toxic if swallowed. May cause digestive (gastrointestinal) tract irritation. May affect the blood. It may affect the kidneys and liver. Symptoms of acute poisoning may include ulceration and corrosion, epigastric pain, nausea, vomiting, diarrhea, vertigo, fever, muscle cramps, hemorrhagic diathesis, toxic nephritis, renal failure, intravascular hemolysis, circulatory collapse, liver damage, peripheral capsular collapse, acute multisystem shock and coma, death depending on the dose.

Aspiration hazard  
No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Chronic Toxicity  
Chronic poisoning usually results from inhalation or ingestion. 
May affect the lungs, blood, kidneys and liver. 
Signs and symptoms may include lacrimation, dermatitis, penetrating ulcers, perforation of nasal septum, asthma, pneumonia, pulmonary edema, congestion, chronic rhinitis, polyps of the upper respiratory tract, inflammation of the lung, emphysema, tracheitis, bronchitis, pharyngitis, adhesions of the diaphragm, inflammation of larynx, conjunctivitis, loss of appetite, nausea, vomiting, inflammation of liver or even acute hepatitis with jaundice, respiratory irritations, leukocytosis, leukopenia, monocytoysis, and eosinophilia. Prolonged or repeated ingestion may cause allergic dermatitis. Repeated or prolonged skin contact may cause skin sensitization. Prolonged or repeated inhalation may cause respiratory sensitization. Inhalation: May cause allergic respiratory reaction (occupational asthma).

Sensitization:  
May cause sensitization by inhalation and skin contact

Mutagenic Effects:  
May affect genetic material

Carcinogenic effects:  
Carcinogenic.

<table>
<thead>
<tr>
<th>Components</th>
<th>IARC</th>
<th>ACGIH - Carcinogens</th>
<th>NTP</th>
<th>OSHA HCS - Carcinogens</th>
<th>Australia - Notifiable Carcinogenic Substances</th>
<th>Australia - Prohibited Carcinogenic Substances</th>
</tr>
</thead>
</table>

Reproductive toxicity  
May damage fertility or the unborn child

Reproductive Effects:  
Causes adverse reproductive effects
May impair fertility

Developmental Effects:  
May cause adverse developmental effects

Teratogenic Effects:  
No information available

Product code: A1179  
Product name: AMMONIUM
DICHROMATE, PURIFIED
Specific Target Organ Toxicity

STOT - single exposure
No information available

STOT - repeated exposure
Causes damage to organs through prolonged or repeated exposure.

Target Organs:

12. ECOLOGICAL INFORMATION

Ecotoxicity

Ecotoxicity effects: Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Ammonium Dichromate - 7789-09-5

Freshwater Fish Species Data: 136 mg/L LC50 96h
212 mg/L LC50 Mosquito fish 48h
50 mg/L LC50 Leuciscus idus (Golden orfe) 48h

Persistence and degradability: No information available

Bioaccumulative potential: No information available

Mobility: No information available

13. DISPOSAL CONSIDERATIONS

Disposal Methods

Waste from residues / unused products:
Waste must be disposed of in accordance with Federal, State and Local regulation.

Contaminated packaging:
Empty containers should be taken for local recycling, recovery or waste disposal. Do not re-use empty containers Dispose of as unused product.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium Dichromate</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>

14. TRANSPORT INFORMATION

DOT

UN-No: UN1439
Proper Shipping Name: Ammonium dichromate
Hazard Class: 5.1
Subsidiary Risk: No information available
Packing Group: II
ERG No: 141
Marine Pollutant: No data available
DOT RQ (lbs): No information available
Symbol(s): R2
14. TRANSPORT INFORMATION

TDG (Canada)
- UN-No: UN1439
- Proper Shipping Name: Ammonium dichromate
- Hazard Class: 5.1
- Subsidiary Risk: No information available
- Packing Group: II
- Description: No information available

ADR
- UN-No: UN1439
- Proper Shipping Name: Ammonium dichromate
- Hazard Class: 5.1
- Packing Group: II
- Subsidiary Risk: No information available
- Classification Code: No information available
- Description: No information available
- CEFIC Tremcard No: No information available

IMO / IMDG
- UN-No: UN1439
- Proper Shipping Name: Ammonium dichromate
- Hazard Class: 5.1
- Subsidiary Risk: No information available
- Packing Group: II
- Description: No information available
- IMDG Page: No information available
- Marine Pollutant: No information available
- EMS: F-H
- MFAG: No information available
- Maximum Quantity: No information available

RID
- UN-No: UN1439
- Proper Shipping Name: Ammonium dichromate
- Hazard Class: 5.1
- Subsidiary Risk: No information available
- Packing Group: II
- Classification Code: No information available
- Description: No information available

ICAO
- UN-No: UN1439
- Proper Shipping Name: Ammonium dichromate
- Hazard Class: 5.1
- Subsidiary Risk: No information available
- Packing Group: II
- Description: No information available

IATA
- UN-No: UN1439
- Proper Shipping Name: Ammonium dichromate
- Hazard Class: 5.1
- Subsidiary Risk: No information available
- Packing Group: II
- ERG Code: 5L
- Description: No information available
15. REGULATORY INFORMATION

International Inventories

<table>
<thead>
<tr>
<th>Components</th>
<th>U.S. TSCA</th>
<th>KOREA KECL (PICCS)</th>
<th>Philippines (PICCS)</th>
<th>Japan ENCS (1)-273</th>
<th>CHINA</th>
<th>Australia (AICS)</th>
<th>EINECS-No.</th>
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</thead>
<tbody>
<tr>
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<td>Present KE-01653</td>
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<td>Present</td>
<td>Present</td>
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<td>Present 232-143-1</td>
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</table>

U.S. Regulations

Ammonium Dichromate

Massachusetts RTK: Present
New Jersey RTK Hazardous Substance List: 0097 3575 2245
New Jersey (EHS) List: 2245 500 lb TPQ
New Jersey - Discharge Prevention - List of Hazardous Substances: Present
Pennsylvania RTK: Environmental hazard
Pennsylvania RTK - Environmental Hazard List Present
Pennsylvania RTK - Special Hazardous Substances Present
Minnesota - Hazardous Substance List: Carcinogen (as Cr)
New York Release Reporting - List of Hazardous Substances:
10 lb RQ
Louisiana Reportable Quantity List for Pollutants: 10 lb final RQ
4.54 kg final RQ
California Directors List of Hazardous Substances: Present


Chemicals Known to the State of California to Cause Cancer:
WARNING: This product contains a chemical known to the State of California to cause cancer. (See table below)

Chemicals Known to the State of California to Cause Reproductive Toxicity:
WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm (See table below)

<table>
<thead>
<tr>
<th>Components</th>
<th>Carcinogen</th>
<th>Developmental Toxicity</th>
<th>Male Reproductive Toxicity</th>
<th>Female Reproductive Toxicity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium Dichromate</td>
<td>carcinogen</td>
<td>developmental toxicity</td>
<td>male reproductive toxicity</td>
<td>female reproductive toxicity</td>
</tr>
</tbody>
</table>

CERCLA/SARA

<table>
<thead>
<tr>
<th>Components</th>
<th>CERCLA - Hazardous Substances and their Reportable Quantities</th>
<th>Section 302 Extremely Hazardous Substances and TPQs</th>
<th>Section 302 Extremely Hazardous Substances and RQs</th>
<th>Section 313 - Chemical Category</th>
<th>Section 313 - Reporting de minimis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium Dichromate</td>
<td>10 lb final RQ 4.54 kg final RQ</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>0.1% de minimis concentration</td>
</tr>
</tbody>
</table>

U.S. TSCA

<table>
<thead>
<tr>
<th>Components</th>
<th>TSCA Section 5(a)2 - Chemicals With Significant New Use Rules (SNURS)</th>
<th>TSCA 8(d) - Health and Safety Reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium Dichromate</td>
<td>Not Applicable</td>
<td>Not Applicable</td>
</tr>
</tbody>
</table>

Canada

WHMIS hazard class:
C  Oxidizing materials
D1A Very toxic materials
D2A Very toxic materials
D2B Toxic materials

Product code: A1179  Product name: AMMONIUM DICHROMATE, PURIFIED
Ammonium Dichromate  
C D1A D2A D2B

Canada Controlled Products Regulation: 
This product has been classified according to the hazard criteria of the CPR (Controlled Products Regulation) and the MSDS contains all of the information required by the CPR.

<table>
<thead>
<tr>
<th>Components</th>
<th>WHMIS Ingredient Disclosure List -</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium Dichromate</td>
<td>1 %</td>
</tr>
</tbody>
</table>

Inventory

<table>
<thead>
<tr>
<th>Components</th>
<th>Canada (DSL)</th>
<th>Canada (NDSL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium Dichromate</td>
<td>Present</td>
<td>Not Listed</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Components</th>
<th>CEPA Schedule I - Toxic Substances</th>
<th>CEPA - 2010 Greenhouse Gases Subject to Mandatory Reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium Dichromate</td>
<td>Present</td>
<td>Not listed</td>
</tr>
</tbody>
</table>

EU Classification

R-phrase(s)
R 2 - Risk of explosion by shock, friction, fire or other sources of ignition.
R 8 - Contact with combustible material may cause fire.
R21 - Harmful in contact with skin.
R25 - Toxic if swallowed.
R26 - Very toxic by inhalation.
R34 - Causes burns.
R45 - May cause cancer.
R46 - May cause heritable genetic damage.
R50 - Very toxic to aquatic organisms.
R53 - May cause long-term adverse effects in the aquatic environment.
R60 - May impair fertility.
R61 - May cause harm to the unborn child.
R48/23 - Toxic: danger of serious damage to health by prolonged exposure through inhalation.
R42/43 - May cause sensitization by inhalation and skin contact.

S-phrase(s)
S53 - Avoid exposure - obtain special instructions before use.
S45 - In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
S60 - This material and its container must be disposed of as hazardous waste.
S61 - Avoid release to the environment. Refer to special instructions/safety data sheets.
S 1/2 - Keep locked up and out of the reach of children.
S36/37/39 - Wear suitable protective clothing, gloves and eye/face protection.
S 7/9 - Keep container tightly closed and in a well-ventilated place.

Components | Classification | Concentration Limits: | Safety Phrases |
------------|----------------|-----------------------|----------------|

Product code: A1179  
Product name: AMMONIUM DICHROMATE, PURIFIED
The product is classified in accordance with Annex VI to Directive 67/548/EEC

**Indication of danger:**
- E - Explosive.
- C - Corrosive.
- T+ - Very toxic.
- T - Toxic
- Xn - Harmful.
- O - Oxidising.
- N - Dangerous for the environment.

16. OTHER INFORMATION
Disclaimer:

All chemicals may pose unknown hazards and should be used with caution. This Safety Data Sheet (SDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this SDS. The physical properties reported in this SDS are obtained from the literature and do not constitute product specifications. Information contained herein does not constitute a warranty, whether expressed or implied, as to the safety, merchantability or fitness of the goods for a particular purpose. Spectrum Chemicals & Laboratory Products, Inc. assumes no responsibility for results obtained or for incidental or consequential damages, including lost profits, arising from the use of these data. No warranty against infringement of any patent, copyright or trademark is made or implied. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this SDS is based on technical data judged to be reliable, Spectrum assumes no responsibility for the completeness or accuracy of the information contained herein.

End of Safety Data Sheet