



## MATERION

### 1. Chemical and company identification

Name of chemical (Product name)	Aluminum - Chromium Products	
Supplier's company name, address and phone number		
Company name	Materion Electronic Materials	
Address	6070 Parkland Boulevard Mayfield Heights, OH 44124 United States	
Contact person	Theodore Knudson	
Telephone	EH&S	1.216.383.4019
e-mail address	ehs@materion.com	
Emergency telephone number	See Section 16.	
Reference number	260	

### 2. Hazards identification

#### GHS classification

Physical hazards	The product is not classified according to GHS.	
Health hazards	Serious eye damage/eye irritation	Category 2
	Sensitization, respiratory	Category 1
	Sensitization, skin	Category 1
	Specific target organ toxicity, single exposure	Category 1 (respiratory system)
	Specific target organ toxicity, single exposure	Category 3 respiratory tract irritation
	Specific target organ toxicity, repeated exposure	Category 1 (respiratory system)
Environmental hazards	Short-term (acute) hazardous to the aquatic environment	Category 2
	Long-term (chronic) hazardous to the aquatic environment	Category 2

#### GHS label elements

##### Pictograms



##### Signal words

Danger

##### Hazard statement

The material as sold in solid form is generally not considered hazardous. However, if the process involves grinding, melting, cutting or any other process that causes a release of dust or fumes, hazardous levels of airborne particulate could be generated. May cause an allergic skin reaction. Causes serious eye irritation. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause respiratory irritation. Causes damage to organs (respiratory system). Causes damage to organs (respiratory system) through prolonged or repeated exposure. Toxic to aquatic life. Toxic to aquatic life with long lasting effects.

#### Precautionary statement

##### Prevention

Do not breathe dust/fume/gas/mist/vapors/spray. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Contaminated work clothing should not be allowed out of the workplace. Avoid release to the environment. Wear eye protection/face protection. Wear protective gloves. Wear respiratory protection.

<b>Response</b>	IF ON SKIN: Wash with plenty of water. IF INHALED: Remove person to fresh air and keep comfortable for breathing. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. IF exposed or concerned: Call a POISON CENTER/doctor. If skin irritation or rash occurs: Get medical advice/attention. If eye irritation persists: Get medical advice/attention. If experiencing respiratory symptoms: Call a POISON CENTER/doctor. Take off contaminated clothing and wash it before reuse. Collect spillage.
<b>Storage</b>	Store in a well-ventilated place. Keep container tightly closed. Store locked up.
<b>Disposal</b>	Dispose of contents/container in accordance with local/regional/national/international regulations.
<b>Other hazards which do not result in classification</b>	None known.
<b>Supplemental information</b>	For further information, please contact the Product Stewardship Department at +1.216.383.4019.
<b>Main symptoms and emergency overview</b>	
<b>Main symptoms</b>	Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause respiratory irritation. Difficulty in breathing. May cause an allergic skin reaction. Dermatitis. Rash. Prolonged exposure may cause chronic effects.
<b>Emergency overview</b>	Causes damage to organs. Causes serious eye irritation. May cause irritation to the respiratory system. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause an allergic skin reaction. Dangerous for the environment if discharged into watercourses.

### 3. Composition/information on ingredients

<b>Substance or mixture</b>	Mixture
	<b>Gazette notification</b>
<b>Chemical name or generic name</b>	<b>CAS Number      ENCS no.      ISHL no.      Concentration (%)</b>
Aluminum	7429-90-5                     70 - 99.9
Chromium	7440-47-3                     0.1 - 30

**Chemical formula**      Al (7429-90-5), Cr (7440-47-3)

### 4. First aid measures

<b>If inhaled</b>	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Oxygen or artificial respiration if needed. Do not use mouth-to-mouth method if victim 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. If experiencing respiratory symptoms: Call a poison center or doctor/physician.
<b>If on skin</b>	Remove contaminated clothing immediately and wash skin with soap and water. In case of eczema or other skin disorders: Seek medical attention and take along these instructions.
<b>If in eyes</b>	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.
<b>If swallowed</b>	Rinse mouth. Get medical attention if symptoms occur.
<b>Most important symptoms/effects, acute and delayed</b>	Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause respiratory irritation. Difficulty in breathing. May cause an allergic skin reaction. Dermatitis. Rash. Prolonged exposure may cause chronic effects.
<b>Protection of first-aid responders</b>	If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Wash contaminated clothing before reuse.
<b>Notes to physician</b>	Provide general supportive measures and treat symptomatically. Keep victim under observation. Symptoms may be delayed.

### 5. Fire-fighting measures

<b>Extinguishing media</b>	Powder. Dry sand.
<b>Extinguishing media to avoid</b>	Do not use water jet as an extinguisher, as this will spread the fire.
<b>Specific hazards</b>	During fire, gases hazardous to health may be formed.
<b>Special fire fighting procedures</b>	Move containers from fire area if you can do so without risk.
<b>Protection of fire-fighters</b>	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
<b>General fire hazards</b>	No unusual fire or explosion hazards noted.
<b>Specific methods</b>	Use standard firefighting procedures and consider the hazards of other involved materials.

## 6. Accidental release measures

<b>Personal precautions, protective equipment and emergency procedures</b>	Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.
<b>Environmental precautions</b>	Avoid release to the environment. Inform appropriate managerial or supervisory personnel of all environmental releases. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.
<b>Methods and materials for containment and cleaning up</b>	Prevent product from entering drains.  Large Spills: Stop the flow of material, if this is without risk. Following product recovery, flush area with water.  Small Spills: Clean surface thoroughly to remove residual contamination.  Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.

## 7. Handling and storage

### Handling

<b>Technical measures (e.g. Local and general ventilation)</b>	Provide adequate ventilation.
<b>Safe handling advice</b>	Avoid breathing dust/fume/gas/mist/vapors/spray. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. When using, do not eat, drink or smoke. Wash hands thoroughly after handling. Avoid release to the environment. Observe good industrial hygiene practices. Use personal protection recommended in Section 8 of the SDS.
<b>Contact avoidance measures</b>	Strong oxidizing agents. For further information, please refer to section 10 of the SDS.
<b>Hygiene measures</b>	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Contaminated work clothing should not be allowed out of the workplace.

### Storage

<b>Safe storage conditions</b>	Store locked up. Keep container tightly closed. Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS).
<b>Safe packaging materials</b>	Store in original tightly closed container.

## 8. Exposure controls/personal protection

<b>Control parameters</b>	Follow standard monitoring procedures.
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### Occupational exposure limits

Japan. OELs - ISHL. Working Environment Measurement Standards, Ministry of Labor Notice No. 79 of September 1, 1988, as amended

Components	Type	Value	Form
Aluminum (CAS 7429-90-5)	TLV	0.025 mg/m <sup>3</sup>	Dust.

Japan. OELs - JSOH (Japan Society of Occupational Health) Recommendation of Occupational Exposure Limits

Components	Type	Value	Form
Aluminum (CAS 7429-90-5)	TWA	2 mg/m <sup>3</sup>	Total dust.
		0.5 mg/m <sup>3</sup>	Respirable dust.
Chromium (CAS 7440-47-3)	TWA	0.5 mg/m <sup>3</sup>	

US. ACGIH Threshold Limit Values (TLV)

Components	Type	Value	Form
Aluminum (CAS 7429-90-5)	TWA	1 mg/m <sup>3</sup>	Respirable fraction.
Chromium (CAS 7440-47-3)	TWA	0.5 mg/m <sup>3</sup>	Inhalable fraction.

## Biological limit values

### ACGIH Biological Exposure Indices (BEI)

Components	Value	Determinant	Specimen	Sampling Time
Chromium (CAS 7440-47-3)	0.7 µg/l	Total chromium	Urine	*

\* - For sampling details, please see the source document.

## Engineering measures

Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. General ventilation normally adequate. Provide eyewash station.

## Personal protective equipment

<b>Respiratory protection</b>	In case of insufficient ventilation, wear suitable respiratory equipment.
<b>Hand protection</b>	Wear appropriate chemical resistant gloves.
<b>Eye protection</b>	Wear safety glasses with side shields (or goggles).
<b>Skin and body protection</b>	Wear appropriate chemical resistant clothing. Use of an impervious apron is recommended.

## 9. Physical and chemical properties

<b>Physical state</b>	Solid.
<b>Form</b>	Solid.
<b>Color</b>	Grey metallic.
<b>Odor</b>	None.
<b>Odor threshold</b>	Not applicable.
<b>Melting point/freezing point</b>	1220 °F (660 °C) estimated
<b>Boiling point, initial boiling point, and boiling range</b>	4220.6 °F (2327 °C) estimated
<b>Combustibility</b>	Not flammable
<b>Lower and upper explosion limit / flammability limit</b>	
Explosive limit - lower (%)	Not applicable.
Explosive limit - lower (%) temperature	Not applicable.
Explosive limit - upper (%)	Not applicable.
Explosive limit - upper (%) temperature	Not applicable.
<b>Flash point</b>	Not applicable.
<b>Auto-ignition temperature</b>	Not applicable.
<b>Decomposition temperature</b>	Not applicable.
<b>pH</b>	Not applicable.
<b>Kinematic viscosity</b>	Not applicable.
<b>Solubility(ies)</b>	
Solubility (water)	Insoluble.
<b>Partition coefficient (n-octanol/water) (log value)</b>	Not applicable.
<b>Vapor pressure</b>	-0.01 hPa estimated
<b>Density and/or relative density</b>	
Density	3.73 g/cm <sup>3</sup> estimated
Relative density	Not applicable.
<b>Vapor density</b>	Not available.
<b>Particle characteristics</b>	Not applicable.
<b>Other information</b>	
Evaporation rate	Not applicable.
Explosive properties	Not explosive.
Oxidizing properties	Not oxidizing.

**Specific gravity** 3.73 estimated  
**Viscosity (Coefficient of viscosity)** Not applicable.

## 10. Stability and reactivity

**Reactivity** The product is stable and non-reactive under normal conditions of use, storage and transport.  
**Chemical stability** Material is stable under normal conditions.  
**Possibility of hazardous reactions** No dangerous reaction known under conditions of normal use.  
**Conditions to avoid** Contact with incompatible materials.  
**Incompatible materials** Strong oxidizing agents.  
**Hazardous decomposition products** No hazardous decomposition products are known.

## 11. Toxicological information

**Acute toxicity** 99.9% of the mixture consists of component(s) of unknown acute dermal toxicity. 99.9% of the mixture consists of component(s) of unknown acute oral toxicity.  
**Skin corrosion/irritation** Prolonged skin contact may cause temporary irritation.  
**Serious eye damage/eye irritation** Causes serious eye irritation.

### Respiratory or skin sensitization

#### Japan Society for Occupational Health: Respiratory sensitizer

Chromium (CAS 7440-47-3) 2 Probable respiratory sensitizer.

#### Japan Society for Occupational Health: Skin sensitizer

Chromium (CAS 7440-47-3) 1 Known skin sensitizer.

**Respiratory sensitization** May cause allergy or asthma symptoms or breathing difficulties if inhaled.

**Skin sensitization** May cause an allergic skin reaction.

**Germ cell mutagenicity** No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

### Carcinogenicity

#### ACGIH Carcinogens

Aluminum (CAS 7429-90-5) A4 Not classifiable as a human carcinogen.

#### IARC Monographs. Overall Evaluation of Carcinogenicity

Chromium (CAS 7440-47-3) 3 Not classifiable as to carcinogenicity to humans.

**Reproductive toxicity** This product is not expected to cause reproductive or developmental effects.

**Specific target organ toxicity - single exposure** Causes damage to organs (respiratory system). May cause respiratory irritation.

**Specific target organ toxicity - repeated exposure** Causes damage to organs (respiratory system) through prolonged or repeated exposure.

**Aspiration hazard** Not an aspiration hazard.

## 12. Ecological information

### Ecotoxicological data

Product		Species	Test Results
Aluminum - Chromium Products			
<b>Aquatic</b>			
Fish	LC50	Fish	2.676 mg/l, 96 hours
<i>Acute</i>			
Crustacea	EC50	Daphnia	0.0333 mg/l, 48 hours estimated
Fish	LC50	Fish	0.2089 mg/l, 96 hours estimated

Components	Species	Test Results
Aluminum (CAS 7429-90-5)		
<b>Aquatic</b>		
<i>Acute</i>		
Fish	LC50	Grass carp, white amur (Ctenopharyngodon idella) 0.21 - 0.31 mg/l, 96 hours
Chromium (CAS 7440-47-3)		
<b>Aquatic</b>		
<i>Acute</i>		
Crustacea	EC50	Water flea (Daphnia magna) 0.01 - 0.7 mg/l, 48 hours
Fish	LC50	Fathead minnow (Pimephales promelas) 10 - 100 mg/l, 96 hours
<b>Ecotoxicity</b>	Toxic to aquatic life with long lasting effects.	
<b>Persistence and degradability</b>	No data is available on the degradability of any ingredients in the mixture.	
<b>Bioaccumulation</b>	No data available.	
<b>Mobility in soil</b>	No data available for this product.	
<b>Hazardous to the ozone layer</b>	No data available.	
<b>Other hazardous effects</b>	No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.	

### 13. Disposal considerations

<b>Residual waste</b>	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
<b>Contaminated packaging</b>	Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.
<b>Local disposal regulations</b>	Contract with a disposal operator licensed by the Law on Disposal and Cleaning. Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations. When your own wastewater treatment plant is not available, collect entire waste and then charge to a licensed industrial waste management professional with manifests for industrial waste.

### 14. Transport information

<b>IATA</b>	Not regulated as dangerous goods.
<b>IMDG</b>	Not regulated as dangerous goods.
<b>Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code</b>	Not applicable.
<b>National regulations</b>	Follow regulation in section 15 for domestic transportation.

### 15. Regulatory information

<b>Industrial Safety and Health Act</b>		
<b>Notifiable substances</b>		
Aluminium(powder)	Table 9 Ordinance No. 37_	70 - 100 %
Chromium and Chromium compounds (excluding chromate and chromate salts and dichromate and dichromate salt)	Table 9 Ordinance No. 142	0.10 - 30 %
<b>Labeling substances</b>		
Aluminium(powder)		70 - 100 %
Chromium and Chromium compounds (excluding chromate and chromate salts and dichromate and dichromate salt)		0.10 - 30 %

**SDS and Risk Assessment**

Aluminium(powder)  
Chromium and Chromium compounds (excluding chromate and chromate salts and dichromate and dichromate salt)

**Poisonous and Deleterious Substances Control Act**

**Specified poisonous substances**

Not regulated.

**Poisonous substances**

Not regulated.

**Deleterious substances**

Not regulated.

**Act on the Regulation of Manufacture and Evaluation of Chemical Substances**

**Class I specified chemical substances**

Not regulated.

**Class II specified chemical substances**

Not regulated.

**Monitoring chemical substances**

Not regulated.

**Priority Assessment Chemical Substances (PACs)**

Not regulated.

**Reporting Exempted Substances**

Not regulated.

**Law concerning Pollutant Release and Transfer Register until March 31, 2023**

**Specified class 1 substances (substance name, ordinance number and content)**

Not regulated.

**Class 1 substances (substance name, ordinance number and content)**

Chromium and Chromium(III) compounds (As Ordinance No. 87 30 % (Chromium)  
Cr)

**Class 2 substances (substance name, ordinance number and content)**

Not regulated.

**Law concerning Pollutant Release and Transfer Register from April 1, 2023**

**Specified class 1 substances (substance name, control number and content)**

Not regulated.

**Class 1 substances (substance name, control number and content)**

Chromium and Chromium(III) compounds Control No. 87 30 % (Chromium)

**Class 2 substances (substance name, control number and content)**

Not regulated.

**Ship Safety Law, Dangerous Goods Marine Transport and Storage Rule**

Not regulated.

**Air Law, Enforcement Rule**

Not regulated.

**Explosives Control Act**

Not regulated.

**Water Pollution Control Act**

CHROMIUM

**Sewage Act**

Chromium and its compounds, except hexavalent chromium 2 MG/L  
compounds (as Cr)

## 16. Other information

### Bibliography

ACGIH Documentation of the Threshold Limit Values and Biological Exposure Indices  
HSDB® - Hazardous Substances Data Bank  
IARC Monographs. Overall Evaluation of Carcinogenicity  
Japan Chemical Industry Association (JCIA) GHS Guideline, June 2019  
Japan Society for Occupational Health, Recommendation of Occupational Exposure Limits  
JIS Z 7252:2019 Classification of chemicals based on “Globally Harmonized System of Classification and Labelling of Chemicals (GHS)”  
JIS Z 7253:2019 Hazard communication of chemicals based on GHS - Labelling and Safety Data Sheet (SDS)  
National Toxicology Program (NTP) Report on Carcinogens

### Further information

Transportation Emergency  
Call Chemtrec at:  
US: 800.424.9300  
International: 703.741.5970  
Spain: 900.868.538  
Switzerland: 0800.564.402  
Chemtrec's toll free, mobile-enabled number in Germany – 0800 1817059  
South Korea Toll-free Number – 080-880-0468

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### Revision information

Product and Company Identification: Product and Company Identification  
Hazards Identification: EU Hazard Classifications  
Composition / Information on Ingredients: Ingredients  
Transport Information: Material Transportation Information  
GHS: Classification