



MATERIAL SAFETY DATA SHEET

MATERION

1. Chemical product and company identification

A. Product name Methyl Ammonium Lead Iodide

B. Recommended use and Limitations on use

Recommended use The chemical(s) listed herein is not found on the Toxic Substance Control Act chemical substance inventory. This chemical may not be used for commercial purposes. This chemical may be used for research and development purposes only as defined at 40 CFR 710.2(y).

C. Supplier information

Company name Materion Advanced Chemicals Inc.

Address 407 N 13th Street
1316 W. St. Paul Avenue
Milwaukee WI 53233
United States

Division Milwaukee

Email advancedmaterials@materion.com

Contact person Noreen Atkinson

Emergency telephone number Chemtrec 800.424.9300

MSDS number MKE-0210

2. Hazards identification

A. Hazard category/Classification

Physical hazards Not classified.

Health hazards Not classified.

Environmental hazards Not classified.

B. Warning label items including precautionary statement

• **Pictogram**



• **Signal word** Danger

• **Hazard statement**

H301 Toxic if swallowed.
H350 May cause cancer.
H332 Harmful if inhaled.

• **Precautionary statement**

Prevention

P284 Observe good industrial hygiene practices.
P280 Wear respiratory protection.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P270 Do not eat, drink or smoke when using this product.
P260 Do not breathe dust/fume.
P285 In case of inadequate ventilation wear respiratory protection.

Response

P307 + P311 Wash hands after handling.
IF exposed: Call a POISON CENTER or doctor/physician.

Storage

P403 + P233 Store away from incompatible materials.
Store in a well-ventilated place. Keep container tightly closed.

Disposal

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

C. Other hazards not included in the hazard category criteria (e.g. dust explosion hazard) None known.

Supplemental information 100% of the mixture consists of component(s) of unknown long-term hazards to the aquatic environment. 100% of the mixture consists of component(s) of unknown acute oral toxicity. 100% of the mixture consists of component(s) of unknown acute hazards to the aquatic environment. 100% of the mixture consists of component(s) of unknown acute dermal toxicity. For further information, please contact the Product Stewardship Department at +1.800.862.4118.

3. Composition/information on ingredients

Chemical identity	Common and alternative names	CAS number	ID number	Content in percent (%)
Methyl Ammonium Lead Iodide		69507-98-8		100

4. First aid measures

A. In case of eye contact Rinse with water. Get medical attention if irritation develops and persists.
B. In case of skin contact Wash off with soap and water. Get medical attention if irritation develops and persists.
C. In case of inhalation Move to fresh air. Call a physician if symptoms develop or persist.
D. In case of swallowing Rinse mouth. Get medical attention if symptoms occur.
E. Note to physician Treat symptomatically.
General advice Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

A. Suitable (and unsuitable) extinguishing media
Suitable extinguishing media Water fog. Foam. Dry chemical powder. Carbon dioxide (CO₂).
Unsuitable extinguishing media Do not use water jet as an extinguisher, as this will spread the fire.
B. Specific hazards arising from the chemical (example: hazardous combustion products) During fire, gases hazardous to health may be formed.
C. Specific methods of fire-fighting
Special protective equipment for firefighters Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
Special fire fighting procedures Use water spray to cool unopened containers.
General fire hazards No unusual fire or explosion hazards noted.
Specific methods Use standard firefighting procedures and consider the hazards of other involved materials.

6. Accidental release measures

A. Personal precautions, protective equipment and emergency measures Keep unnecessary personnel away. For personal protection, see section 8 of the MSDS.
B. Environmental precautions Avoid discharge into drains, water courses or onto the ground.
C. Methods and materials for containment and cleaning up Stop the flow of material, if this is without risk. Following product recovery, flush area with water. For waste disposal, see section 13 of the MSDS.

7. Handling and storage

A. Precautions for safe handling Observe good industrial hygiene practices.
B. Conditions for safe storage (including any incompatibilities) Store in original tightly closed container. Store away from incompatible materials (see Section 10 of the MSDS).

8. Exposure controls/personal protection

A. Exposure limit values, biological limit values, etc
No exposure limits noted for ingredient(s).

Biological limit values	No biological exposure limits noted for the ingredient(s).
B. Appropriate engineering controls	Good general ventilation (typically 10 air changes per hour) 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.
C. Personal protective equipment	
• Respiratory protection	In case of insufficient ventilation, wear suitable respiratory equipment.
• Eye protection	Wear safety glasses with side shields (or goggles).
• Hand protection	Wear appropriate chemical resistant gloves.
• Body protection	Wear suitable protective clothing.
Hygiene measures	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.

9. Physical and chemical properties

A. Appearance	
Physical state	Solid.
Form	Solid.
Color	Not available.
B. Odor	Not available.
C. Odor threshold	Not available.
D. pH	Not available.
E. Melting point/freezing point	Not available.
F. Boiling point, initial boiling point, and boiling range	Not available.
G. Flash point	Not available.
H. Evaporation rate	Not available.
I. Flammability (solid, gas)	Not available.
J. Upper/lower limit on flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
K. Vapor pressure	Not available.
L. Solubility	
Solubility (water)	Not available.
M. Vapor density	Not available.
N. Specific gravity	Not available.
O. n-octanol/water partition coefficient	Not available.
P. Auto-ignition temperature	Not available.
Q. Decomposition temperature	Not available.
R. Viscosity	Not available.
S. Molecular weight	Not available.
Other data	
Explosive properties	Not explosive.
Oxidizing properties	Not oxidizing.

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
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A. Stability and hazardous reaction potential

Stability	Material is stable under normal conditions.
Hazardous reaction potential	No dangerous reaction known under conditions of normal use.

B. Conditions to avoid (e.g. static discharge, shock or vibration, etc) Contact with incompatible materials.

C. Incompatible materials Strong oxidizing agents.

D. Hazardous decomposition products No hazardous decomposition products are known.

11. Toxicological information

A. Information on likely routes of exposure

- Respiratory organs No adverse effects due to inhalation are expected.
- Skin No adverse effects due to skin contact are expected.
- Eyes Direct contact with eyes may cause temporary irritation.
- Mouth Expected to be a low ingestion hazard.

B. Information on health hazards

- Acute toxicity (list all possible routes of exposure) Not known.
- Corrosivity or irritation to the skin Prolonged skin contact may cause temporary irritation.
- Serious eye damage/eye irritation Direct contact with eyes may cause temporary irritation.
- Respiratory sensitization Not a respiratory sensitizer.
- Skin sensitization This product is not expected to cause skin sensitization.
- Carcinogenic properties /Carcinogenicity Not available.
- Mutagenic properties /Mutagenicity No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
- Reproductive toxicity This product is not expected to cause reproductive or developmental effects.
- Specific target organ toxicity - single exposure Not classified.
- Specific target organ toxicity - repeated exposure Not classified.
- Aspiration hazard Not an aspiration hazard.

12. Ecological information

- A. Ecotoxicity
- Hazardous to the aquatic environment, acute hazard The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.
- B. Persistence/degradability No data is available on the degradability of this product.
- C. Bioaccumulative potential No data available.
- D. Mobility in soil No data available.
- E. Other adverse effects 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

- A. Method of disposal Collect and reclaim or dispose in sealed containers at licensed waste disposal site.
- B. Disposal considerations (including disposal of contaminated containers or packaging) 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.

Waste code The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

14. Transport information

IATA

- A. UN number Not applicable.
- B. UN proper shipping name Not applicable.
- C. Transport hazard class(es)
 - Class Not applicable.
 - Subsidiary risk -
- D. Packing group Not applicable.
- E. Environmental hazards No.
- F. Special precautions for user Not applicable.

IMDG

- A. UN number Not applicable.
- B. UN proper shipping name Not applicable.
- C. Transport hazard class(es)
 - Class Not applicable.
 - Subsidiary risk -
- D. Packing group Not applicable.
- E. Environmental hazards
 - Marine pollutant No.
- EmS Not applicable.
- F. Special precautions for user Not applicable.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not applicable.

15. Regulatory information

A. Restrictions under the Industrial Safety and Health Law

Harmful Substances Prohibited from Manufacturing

Not regulated.

Harmful Substances Requiring Permission for Manufacture or Use

Not regulated.

Controlled Hazardous Substances

Not regulated.

Harmful Substances Requiring Special Medical Examination

Not regulated.

Workplace Environmental Monitoring Harmful Materials

Not regulated.

Occupational Exposure Limit

Not regulated.

B. Restrictions under the Chemicals Control Law (Previously Toxic Chemicals Control Law)

Accidental Release Prevention Substances

Not regulated.

Observational Chemicals

Not regulated.

C. Restrictions under the Dangerous Substance Safety Management Act

D. Restrictions under the Wastes Control Act

Halogenated Materials in Waste Organic Solvents

Not regulated.

Hazardous Substances

Not regulated

E. Restrictions under other foreign or domestic laws

Clean Air Conservation Act

Air Pollutants

Not regulated.

Specific Air Pollutants

Not regulated.

Act on the Registration and Evaluation of Chemicals

Banned Toxic Chemicals

Not regulated.

Designated Existing Chemicals Subject to Registration (PEC) (MoE No. 2015-92)

Not listed.

Restricted Chemical Substances

Not regulated.

Toxic Chemicals

Not regulated.

Further information

This material safety data sheet was prepared in accordance with Article 41 of the Industrial Safety and Health Law.

Inventory status

Country(s) or region	Inventory name	On inventory (yes/no)*
Korea	Existing Chemicals List (ECL)	No

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information

A. Source of information

ACGIH
EPA: ACQUIRE database
NLM: Hazardous Substances Data Base
US. IARC Monographs on Occupational Exposures to Chemical Agents
Korea. Accidental Release Prevention Substances (Presidential Decree of Toxic Chemical Control Law, Executive Order No. 19203)
Korea. Dangerous Substances Threshold Quantity (Presidential Decree of Dangerous Substances Safety Management Act No. 18406, Schedule 1)
Korea. Harmful Substances Prohibited from Manufacturing (Presidential Decree on the Industrial Safety and Health Act (No. 13053), Article 29)
Korea. Harmful Substances Requiring Permission for Manufacture or Use (Presidential Decree on the Industrial Safety and Health Act (No. 13053), Article 30)
Korea. Non-Toxic Chemicals List (National Institute of Environment Research (NIER) Public Notice No. 1997-10, as amended)
Korea. Observational Chemicals (Ministerial Decree of TCCL Article 6)
Korea. OELs. Regulation for Permitted Concentration of Hazardous Substances (Ministry of Labor (MOL) Public Notice No. 1986-45, as amended)
Korea. Prohibited Chemical Substances (TCCL Article 11)
Korea. Regulated volatile organic compounds (VOCs) (MOE Notice No. 2001-36, March 8, 2001, as amended)
Korea. Restricted Chemical Substances (TCCL Article 11)
Korea. Toxic Chemical Control Law (TCCL), Existing Chemicals Inventory (KECI)
Korea. Toxic Chemical Control Law (TCCL), pre-1997 List
Korea. Toxic Chemicals (TCCL Article 10)
Korea. Toxic Release Inventory (TRI) Chemicals (TCCL Article 14)

B. Issue date

01-18-2017

C. Number of revisions and date of most recent revision

Not applicable.

Other information

Not available.

Disclaimer

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