



SAFETY DATA SHEET

MATERION

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Trade name or designation of the mixture Zinc arsenide in 1%HCl:1%HNO3 solution
Registration number -
Document number 2LQ
Synonyms Zinc arsenide (Zn3As2) * Trizinc diarsenide
Materion Code 2LQ
Issue date 13-November-2019

1.3. Details of the supplier of the safety data sheet

Supplier

Company name Materion Advanced Chemicals Inc.
Address 407 N. 13th Street
1316 W. St. Paul Avenue
Milwaukee, WI 53233
United States
Division Milwaukee
Telephone 414.212.0257
e-mail advancedmaterials@materion.com
Contact person Laura Hamilton

1.4. Emergency telephone number

Version number 01

1.2. Relevant identified uses of the substance or mixture and uses advised against

Identified uses Not available.
Uses advised against None known.

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

The mixture has been assessed and/or tested for its physical, health and environmental hazards and the following classification applies.

Classification according to Regulation (EC) No 1272/2008 as amended

Health hazards

Acute toxicity, oral	Category 3	
Acute toxicity, dermal	Category 4	H312 - Harmful in contact with skin.
Acute toxicity, inhalation	Category 3	
Skin corrosion/irritation	Category 1A	H314 - Causes severe skin burns and eye damage.
Serious eye damage/eye irritation	Category 1	H318 - Causes serious eye damage.
Carcinogenicity	Category 1A	H350 - May cause cancer.

Environmental hazards

Hazardous to the aquatic environment, acute aquatic hazard	Category 1	H400 - Very toxic to aquatic life.
Hazardous to the aquatic environment, long-term aquatic hazard	Category 1	H410 - Very toxic to aquatic life with long lasting effects.

Hazard summary

DANGER

Very toxic. Toxic by inhalation and if swallowed. Toxic if inhaled. Toxic in contact with skin. Toxic if swallowed. Causes severe skin burns and eye damage. Cancer hazard. Exposure to powder or dusts may be irritating to eyes, nose and throat. Prolonged exposure may cause chronic effects. Dangerous for the environment if discharged into watercourses. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Occupational exposure to the substance or mixture may cause adverse health effects. 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.

2.2. Label elements

Label according to Regulation (EC) No. 1272/2008 as amended

Contains:

Hydrogen chloride (HCl), Zinc arsenide

Hazard pictograms



Signal word

Danger

Hazard statements

H350	May cause cancer.
H301 + H331	Toxic if swallowed or if inhaled
H312	Harmful in contact with skin.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H350	May cause cancer.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

Precautionary statements

Prevention

P201	Obtain special instructions before use.
P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P260	Do not breathe dust.
P264	Wash thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear eye protection/face protection.
P280	Wear protective gloves/protective clothing.
P281	Use personal protective equipment as required.

Response

P301 + P310	IF SWALLOWED: Immediately call a POISON CENTRE/doctor.
P301 + P330 + P310	IF SWALLOWED: Rinse mouth. Immediately obtain medical assistance.
P301 + P330 + P331	IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
P304 + P340 + P311	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Get medical assistance.
P304 + P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTRE/doctor.
P321	Specific treatment (see this label).
P362 + P364	Take off contaminated clothing and wash it before reuse.
P391	Collect spillage.

Storage

P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.

Disposal

P501	Dispose of contents/container in accordance with local/regional/national/international regulations.
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Supplemental label information 1 % of the mixture consists of component(s) of unknown acute oral toxicity. 99 % of the mixture consists of component(s) of unknown acute dermal toxicity. 2 % of the mixture consists of component(s) of unknown acute hazards to the aquatic environment. 2 % of the mixture consists of component(s) of unknown long-term hazards to the aquatic environment. For further information, please contact the Product Stewardship Department at +1.800.862.4118.

2.3. Other hazards The Safety Information Sheet Chemicals of hazardous chemical can be obtained through phone, email or on the company website. Not a PBT or vPvB substance or mixture.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

General information

Chemical name	%	CAS-No. / EC No.	REACH Registration No.	Index No.	Notes
Zinc arsenide	≤ 98	12006-40-5 234-486-2	-	033-002-00-5	
Classification:	Aquatic Chronic 1;H410				1,A
Hydrogen chloride (HCl)	≤ 1	7647-01-0 231-595-7	-	017-002-01-X	#
Classification:	Acute Tox. 4;H302, Acute Tox. 4;H312, Skin Corr. 1A;H314, Eye Dam. 1;H318, Acute Tox. 3;H331, STOT SE 3;H335				5,U
Nitric acid	≤ 1	7697-37-2 231-714-2	-	007-004-00-1	#
Classification:	Ox. Liq. 2;H272, Skin Corr. 1A;H314, Eye Dam. 1;H318				B

List of abbreviations and symbols that may be used above

DSD: Directive 67/548/EEC.

CLP: Regulation No. 1272/2008.

#: This substance has been assigned Union workplace exposure limit(s).

#: This substance has been assigned Community workplace exposure limit(s).

M: M-factor

PBT: persistent, bioaccumulative and toxic substance.

vPvB: very persistent and very bioaccumulative substance.

All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

Composition comments The full text for all R- and H-phrases is displayed in section 16. The full text for all H-statements is displayed in section 16.

SECTION 4: First aid measures

General information

In case of shortness of breath, give oxygen. IF exposed or concerned: Get medical advice/attention. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. Keep victim under observation. Keep victim warm.

4.1. Description of first aid measures

Inhalation

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. Call a physician or poison control centre immediately.

Skin contact

Take off immediately all contaminated clothing. Wash the skin immediately with soap and water. Call a physician or poison control centre immediately. Chemical burns must be treated by a physician. Wash contaminated clothing before reuse. Wash clothing separately before reuse.

Eye contact

Do not rub eyes. Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician or poison control centre immediately.

Ingestion

Call a physician or poison control centre immediately. Rinse mouth thoroughly. Never give anything by mouth to a victim who is unconscious or is having convulsions. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Do not use mouth-to-mouth method if victim ingested the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

4.2. Most important symptoms and effects, both acute and delayed

Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result.

4.3. Indication of any immediate medical attention and special treatment needed

Provide general supportive measures and treat symptomatically. Chemical burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation. Symptoms may be delayed.

SECTION 5: Firefighting measures

General fire hazards	No unusual fire or explosion hazards noted.
5.1. Extinguishing media	
Suitable extinguishing media	Water fog. Foam. Dry chemical powder. Carbon dioxide (CO ₂).
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
5.2. Special hazards arising from the substance or mixture	During fire, gases hazardous to health may be formed.
5.3. Advice for firefighters	
Special protective equipment for firefighters	Wear suitable protective equipment. Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
Special firefighting procedures	Use water spray to cool unopened containers. Water runoff can cause environmental damage.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel Immediately evacuate personnel to safe areas. Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Wear appropriate protective equipment and clothing during clean-up. Do not breathe dust. Use a NIOSH/MSHA approved respirator if there is a risk of exposure to dust/fume at levels exceeding the exposure limits. 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.

For emergency responders Keep unnecessary personnel away. Use personal protection recommended in Section 8 of the SDS.

6.2. Environmental precautions

Avoid release to the environment. Refer to special instructions/safety data sheets. Inform appropriate managerial or supervisory personnel of all environmental releases. Prevent further leakage or spillage if safe to do so. Do not contaminate water. Avoid discharge into drains, water courses or onto the ground.

6.3. Methods and material for containment and cleaning up

Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air). Collect dust using a vacuum cleaner equipped with HEPA filter. Prevent entry into waterways, sewer, basements or confined areas. Stop the flow of material, if this is without risk.

Large Spills: Wet down with water and dike for later disposal. Absorb in vermiculite, dry sand or earth and place into containers. Shovel the material into waste container. Following product recovery, flush area with water.

Small Spills: Sweep up or vacuum up spillage and collect in suitable container for disposal. Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use. Put material in suitable, covered, labeled containers.

6.4. Reference to other sections

For personal protection, see section 8. For waste disposal, see section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Minimise dust generation and accumulation. Do not breathe dust. Do not get in eyes, on skin, or on clothing. Do not taste or swallow. Do not get this material on clothing. Avoid prolonged exposure. When using, do not eat, drink or smoke. Should be handled in closed systems, if possible. Use only outdoors or in a well-ventilated area. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Avoid release to the environment. Do not empty into drains. Use appropriate container to avoid environmental contamination. Wash contaminated clothing before reuse. Observe good industrial hygiene practices.

7.2. Conditions for safe storage, including any incompatibilities

Store locked up. Store in a cool, dry place out of direct sunlight. Use appropriate container to avoid environmental contamination. Store in tightly closed container. Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS).

7.3. Specific end use(s)

Not available.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits

Austria. MAK List, OEL Ordinance (GwV), BGBl. II, no. 184/2001

Components	Type	Value
Hydrogen chloride (HCl) (CAS 7647-01-0)	Ceiling	15 mg/m ³
		10 ppm
	MAK	8 mg/m ³
Nitric acid (CAS 7697-37-2)	Ceiling	5 ppm
		2,6 mg/m ³
		1 ppm

Austria. TRK List, OEL Ordinance (GwV), BGBl. II, no. 184/2001

Components	Type	Value	Form
Zinc arsenide (CAS 12006-40-5)	STEL	0,4 mg/m ³	Inhalable fraction.
	TWA	0,1 mg/m ³	Inhalable fraction.

Belgium. Exposure Limit Values.

Components	Type	Value
Hydrogen chloride (HCl) (CAS 7647-01-0)	STEL	15 mg/m ³
		10 ppm
	TWA	8 mg/m ³
Nitric acid (CAS 7697-37-2)		5 ppm
	STEL	2,6 mg/m ³
		1 ppm
Zinc arsenide (CAS 12006-40-5)	TWA	0,01 mg/m ³

Bulgaria. OELs. Regulation No 13 on protection of workers against risks of exposure to chemical agents at work

Components	Type	Value
Hydrogen chloride (HCl) (CAS 7647-01-0)	STEL	15 mg/m ³
		10 ppm
	TWA	8 mg/m ³
Nitric acid (CAS 7697-37-2)		5 ppm
	STEL	2,6 mg/m ³
		1 ppm
Zinc arsenide (CAS 12006-40-5)	TWA	0,05 mg/m ³

Croatia. Dangerous Substance Exposure Limit Values in the Workplace (ELVs), Annexes 1 and 2, Narodne Novine, 13/09

Components	Type	Value
Hydrogen chloride (HCl) (CAS 7647-01-0)	MAC	8 mg/m ³
		5 ppm
	STEL	15 mg/m ³
Nitric acid (CAS 7697-37-2)		10 ppm
	STEL	2,6 mg/m ³
		1 ppm
Zinc arsenide (CAS 12006-40-5)	MAC	0,1 mg/m ³

Cyprus. OELs. Control of factory atmosphere and dangerous substances in factories regulation, PI 311/73, as amended.

Components	Type	Value
Zinc arsenide (CAS 12006-40-5)	TWA	0,01 mg/m ³

Czech Republic. OELs. Government Decree 361

Components	Type	Value
Hydrogen chloride (HCl) (CAS 7647-01-0)	Ceiling	15 mg/m ³
	TWA	8 mg/m ³
Nitric acid (CAS 7697-37-2)	Ceiling	2,5 mg/m ³
	TWA	1 mg/m ³
Zinc arsenide (CAS 12006-40-5)	Ceiling	0,4 mg/m ³
	TWA	0,1 mg/m ³

Denmark. Exposure Limit Values

Components	Type	Value
Hydrogen chloride (HCl) (CAS 7647-01-0)	Ceiling	8 mg/m ³
		5 ppm
Nitric acid (CAS 7697-37-2)	STEL	2,6 mg/m ³
		1 ppm

Estonia. OELs. Occupational Exposure Limits of Hazardous Substances. (Annex of Regulation No. 293 of 18 September 2001)

Components	Type	Value
Hydrogen chloride (HCl) (CAS 7647-01-0)	STEL	15 mg/m ³
		10 ppm
		8 mg/m ³
Nitric acid (CAS 7697-37-2)	STEL	5 ppm
		2,6 mg/m ³
		1 ppm
Zinc arsenide (CAS 12006-40-5)	TWA	0,03 mg/m ³

Finland. Workplace Exposure Limits

Components	Type	Value
Hydrogen chloride (HCl) (CAS 7647-01-0)	STEL	7,6 mg/m ³
		5 ppm
Nitric acid (CAS 7697-37-2)	STEL	2,6 mg/m ³
		1 ppm
		1,3 mg/m ³
Zinc arsenide (CAS 12006-40-5)	TWA	0,5 ppm
		0,01 mg/m ³

France. Threshold Limit Values (VLEP) for Occupational Exposure to Chemicals in France, INRS ED 984

Components	Type	Value
Hydrogen chloride (HCl) (CAS 7647-01-0)	VLE	7,6 mg/m ³
		Regulatory status: Regulatory binding (VRC)
		5 ppm
Nitric acid (CAS 7697-37-2)	VLE	2,6 mg/m ³
		Regulatory status: Regulatory binding (VRC)
		Regulatory status: Regulatory indicative (VRI)

France. Threshold Limit Values (VLEP) for Occupational Exposure to Chemicals in France, INRS ED 984

Components	Type	Value
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1 ppm

Regulatory status: Regulatory indicative (VRI)

Germany. DFG MAK List (advisory OELs). Commission for the Investigation of Health Hazards of Chemical Compounds in the Work Area (DFG)

Components	Type	Value	Form
Hydrogen chloride (HCl) (CAS 7647-01-0)	TWA	3 mg/m ³	
Zinc arsenide (CAS 12006-40-5)	TWA	2 ppm	Inhalable fraction.
		2 mg/m ³	
		0,1 mg/m ³	Respirable fraction.

Germany. TRGS 900, Limit Values in the Ambient Air at the Workplace

Components	Type	Value
Hydrogen chloride (HCl) (CAS 7647-01-0)	AGW	3 mg/m ³
Nitric acid (CAS 7697-37-2)	AGW	2 ppm
		2,6 mg/m ³
		1 ppm

Greece. OELs (Decree No. 90/1999, as amended)

Components	Type	Value
Hydrogen chloride (HCl) (CAS 7647-01-0)	STEL	7 mg/m ³
	TWA	5 ppm 7 mg/m ³
Nitric acid (CAS 7697-37-2)	STEL	5 ppm 2,6 mg/m ³
		1 ppm
Zinc arsenide (CAS 12006-40-5)	TWA	0,1 mg/m ³

Hungary. OELs. Joint Decree on Chemical Safety of Workplaces

Components	Type	Value
Hydrogen chloride (HCl) (CAS 7647-01-0)	STEL	16 mg/m ³
	TWA	8 mg/m ³
Nitric acid (CAS 7697-37-2)	STEL	2,6 mg/m ³
Zinc arsenide (CAS 12006-40-5)	Ceiling	0,01 mg/m ³

Iceland. OELs. Regulation 154/1999 on occupational exposure limits

Components	Type	Value
Hydrogen chloride (HCl) (CAS 7647-01-0)	STEL	8 mg/m ³
Nitric acid (CAS 7697-37-2)	STEL	5 ppm
		2,6 mg/m ³
		1 ppm
Zinc arsenide (CAS 12006-40-5)	TWA	0,01 mg/m ³

Ireland. Occupational Exposure Limits

Components	Type	Value
Hydrogen chloride (HCl) (CAS 7647-01-0)	STEL	15 mg/m ³
	TWA	10 ppm 8 mg/m ³

Ireland. Occupational Exposure Limits Components

Type	Value
Nitric acid (CAS 7697-37-2)	5 ppm 2,6 mg/m ³
Zinc arsenide (CAS 12006-40-5)	1 ppm 0,01 mg/m ³

Italy. Occupational Exposure Limits Components

Type	Value
Hydrogen chloride (HCl) (CAS 7647-01-0)	15 mg/m ³
	10 ppm
	8 mg/m ³
Nitric acid (CAS 7697-37-2)	5 ppm 2,6 mg/m ³
	1 ppm
Zinc arsenide (CAS 12006-40-5)	0,01 mg/m ³

Latvia. OELs. Occupational exposure limit values of chemical substances in work environment Components

Type	Value
Hydrogen chloride (HCl) (CAS 7647-01-0)	15 mg/m ³
	10 ppm
	8 mg/m ³
	5 ppm
Nitric acid (CAS 7697-37-2)	2,6 mg/m ³
	1 ppm
	2 mg/m ³
	0,78 ppm
Zinc arsenide (CAS 12006-40-5)	0,04 mg/m ³
	0,01 mg/m ³

Lithuania. OELs. Limit Values for Chemical Substances, General Requirements Components

Type	Value
Hydrogen chloride (HCl) (CAS 7647-01-0)	15 mg/m ³
	10 ppm
	8 mg/m ³
	5 ppm
Nitric acid (CAS 7697-37-2)	2,6 mg/m ³
	1 ppm
Zinc arsenide (CAS 12006-40-5)	0,03 mg/m ³

Luxembourg. Binding Occupational exposure limit values (Annex I), Memorial A Components

Type	Value
Hydrogen chloride (HCl) (CAS 7647-01-0)	15 mg/m ³
	10 ppm
	8 mg/m ³
	5 ppm
Nitric acid (CAS 7697-37-2)	2,6 mg/m ³
	1 ppm

Malta. OELs. Occupational Exposure Limit Values (L.N. 227. of Occupational Health and Safety Authority Act (CAP. 424), Schedules I and V)

Components	Type	Value
Hydrogen chloride (HCl) (CAS 7647-01-0)	STEL	15 mg/m ³
		10 ppm
	TWA	8 mg/m ³ 5 ppm

Netherlands. OELs (binding)

Components	Type	Value
Hydrogen chloride (HCl) (CAS 7647-01-0)	STEL	15 mg/m ³
	TWA	8 mg/m ³
Nitric acid (CAS 7697-37-2)	STEL	1,3 mg/m ³

Norway. Administrative Norms for Contaminants in the Workplace

Components	Type	Value
Hydrogen chloride (HCl) (CAS 7647-01-0)	Ceiling	7 mg/m ³
		5 ppm
Nitric acid (CAS 7697-37-2)	TLV	5 mg/m ³
		2 ppm
Zinc arsenide (CAS 12006-40-5)	TLV	0,01 mg/m ³

Ordinance of the Minister of Labour and Social Policy on 6 June 2014 on the maximum permissible concentrations and intensities of harmful health factors in the work environment, Journal of Laws 2014, item 817

Components	Type	Value
Hydrogen chloride (HCl) (CAS 7647-01-0)	STEL	10 mg/m ³
	TWA	5 mg/m ³
Nitric acid (CAS 7697-37-2)	STEL	2,6 mg/m ³
	TWA	1,4 mg/m ³
Zinc arsenide (CAS 12006-40-5)	TWA	0,01 mg/m ³

Portugal. OELs. Decree-Law n. 290/2001 (Journal of the Republic - 1 Series A, n.266)

Components	Type	Value
Hydrogen chloride (HCl) (CAS 7647-01-0)	STEL	15 mg/m ³
		10 ppm
	TWA	8 mg/m ³ 5 ppm
Nitric acid (CAS 7697-37-2)	STEL	2,6 mg/m ³ 1 ppm

Portugal. VLEs. Norm on occupational exposure to chemical agents (NP 1796)

Components	Type	Value
Hydrogen chloride (HCl) (CAS 7647-01-0)	Ceiling	2 ppm
Nitric acid (CAS 7697-37-2)	STEL	4 ppm
	TWA	2 ppm
Zinc arsenide (CAS 12006-40-5)	TWA	0,01 mg/m ³

Romania. OELs. Protection of workers from exposure to chemical agents at the workplace

Components	Type	Value
Hydrogen chloride (HCl) (CAS 7647-01-0)	STEL	15 mg/m ³

Romania. OELs. Protection of workers from exposure to chemical agents at the workplace

Components	Type	Value
Nitric acid (CAS 7697-37-2)	STEL	10 ppm
		8 mg/m ³
		5 ppm
Zinc arsenide (CAS 12006-40-5)	TWA	2,6 mg/m ³
		1 ppm
Zinc arsenide (CAS 12006-40-5)	STEL	0,1 mg/m ³
		0,01 mg/m ³

Slovakia. OELs for carcinogens and mutagens. Regulation No. 46/2002 on carcinogenic and mutagenic substances

Components	Type	Value	Form
Zinc arsenide (CAS 12006-40-5)	TWA	0,1 mg/m ³	Inhalable fraction.

Slovakia. OELs. Regulation No. 300/2007 concerning protection of health in work with chemical agents

Components	Type	Value	Form
Hydrogen chloride (HCl) (CAS 7647-01-0)	TWA	15 mg/m ³	
		10 ppm	
		8 mg/m ³	
Nitric acid (CAS 7697-37-2)	STEL	5 ppm	
		2,6 mg/m ³	
		1 ppm	
Zinc arsenide (CAS 12006-40-5)	TWA	2 mg/m ³	Inhalable fraction.
		0,1 mg/m ³	Respirable fraction.

Slovenia. OELs. Regulations concerning protection of workers against risks due to exposure to chemicals while working (Official Gazette of the Republic of Slovenia)

Components	Type	Value
Hydrogen chloride (HCl) (CAS 7647-01-0)	TWA	8 mg/m ³
		5 ppm
Nitric acid (CAS 7697-37-2)	TWA	2,6 mg/m ³
		1 ppm

Spain. Occupational Exposure Limits

Components	Type	Value
Hydrogen chloride (HCl) (CAS 7647-01-0)	STEL	15 mg/m ³
		10 ppm
		7,6 mg/m ³
Nitric acid (CAS 7697-37-2)	STEL	5 ppm
		2,6 mg/m ³
		1 ppm
Zinc arsenide (CAS 12006-40-5)	TWA	0,01 mg/m ³

Sweden. OELs. Work Environment Authority (AV), Occupational Exposure Limit Values (AFS 2015:7)

Components	Type	Value	Form
Hydrogen chloride (HCl) (CAS 7647-01-0)	Ceiling	6 mg/m ³	
		4 ppm	
		3 mg/m ³	
Nitric acid (CAS 7697-37-2)	Ceiling	2 ppm	
		2,6 mg/m ³	

Sweden. OELs. Work Environment Authority (AV), Occupational Exposure Limit Values (AFS 2015:7)

Components	Type	Value	Form
Zinc arsenide (CAS 12006-40-5)	TWA	1 ppm	Total dust.
		1,3 mg/m ³	
	TWA	0,5 ppm	
		0,01 mg/m ³	

Switzerland. SUVA Grenzwerte am Arbeitsplatz

Components	Type	Value
Hydrogen chloride (HCl) (CAS 7647-01-0)	STEL	6 mg/m ³
	TWA	4 ppm 3 mg/m ³
Nitric acid (CAS 7697-37-2)	STEL	2 ppm 5 mg/m ³
		TWA

UK. EH40 Workplace Exposure Limits (WELs)

Components	Type	Value	Form
Hydrogen chloride (HCl) (CAS 7647-01-0)	STEL	8 mg/m ³	Gas and aerosol mists.
	TWA	5 ppm 2 mg/m ³	Gas and aerosol mists. Gas and aerosol mists.
Nitric acid (CAS 7697-37-2)		STEL	1 ppm 2,6 mg/m ³
	TWA		1 ppm 0,1 mg/m ³

EU. Indicative Exposure Limit Values in Directives 91/322/EEC, 2000/39/EC, 2006/15/EC, 2009/161/EU

Components	Type	Value
Hydrogen chloride (HCl) (CAS 7647-01-0)	STEL	15 mg/m ³
	TWA	10 ppm 8 mg/m ³ 5 ppm
Nitric acid (CAS 7697-37-2)		STEL

Biological limit values**Croatia. BLV. Dangerous Substance Exposure Limit Values at Workplace, Annexes 4 (as amended)**

Components	Value	Determinant	Specimen	Sampling Time
Zinc arsenide (CAS 12006-40-5)	70 µg/l	Arsenic	Urine	*
	0,93 µmol/l	Arsenic	Urine	*

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

Finland. HTP-arvot, App 2., Biological Limit Values, (BRA/BGV), Social Affairs and Ministry of Health

Components	Value	Determinant	Specimen	Sampling Time
Zinc arsenide (CAS 12006-40-5)	70 nmol/l	Inorganic arsenic	Urine	*

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

France. Biological indicators of exposure (IBE) (National Institute for Research and Security (INRS, ND 2065))

Components	Value	Determinant	Specimen	Sampling Time
Zinc arsenide (CAS 12006-40-5)	0,05 mg/g	Métabolites de l'arsenic inorganique	Creatinine in urine	*

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

Hungary. Chemical Safety at Workplace Ordinance Joint Decree No. 25/2000 (Annex 2): Permissible limit values of biological exposure (effect) indices

Components	Value	Determinant	Specimen	Sampling Time
Zinc arsenide (CAS 12006-40-5)	0,13 mg/g	Arsenic	Creatinine in urine	*
	0,2 µmol/mmol	Arsenic	Creatinine in urine	*

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

Spain. Biological Limit Values (VLBs), Occupational Exposure Limits for Chemical Agents, Table 4

Components	Value	Determinant	Specimen	Sampling Time
Zinc arsenide (CAS 12006-40-5)	35 µg/l	Arsénico inorgánico más metabolitos metilados como As	Urine	*

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

Switzerland. BAT-Werte (Biological Limit Values in the Workplace as per SUVA)

Components	Value	Determinant	Specimen	Sampling Time
Zinc arsenide (CAS 12006-40-5)	50 µg/l	Anorganisches Arsen und methylierte Metaboliten	Urine	*

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

Recommended monitoring procedures Follow standard monitoring procedures.

Derived no effect levels (DNELs) Not available.

Predicted no effect concentrations (PNECs) Not available.

8.2. Exposure controls**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. 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. If engineering measures are not sufficient to maintain concentrations of dust particulates below the OEL (occupational exposure limit), suitable respiratory protection must be worn. If material is ground, cut, or used in any operation which may generate dusts, use appropriate local exhaust ventilation to keep exposures below the recommended exposure limits. Eye wash facilities and emergency shower must be available when handling this product.

Individual protection measures, such as personal protective equipment

General information Use personal protective equipment as required. Personal protection equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment.

Eye/face protection Chemical respirator with organic vapour cartridge, full facepiece, dust and mist filter.

Skin protection

- Hand protection Wear appropriate chemical resistant gloves.

- Other Wear appropriate chemical resistant clothing. Use of an impervious apron is recommended. It may provide little or no thermal protection. Personal protection equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment.

Respiratory protection	Use a NIOSH/MSHA approved respirator if there is a risk of exposure to dust/fume at levels exceeding the exposure limits. Chemical respirator with organic vapour cartridge, full facepiece, dust and mist filter.
Thermal hazards	Wear appropriate thermal protective clothing, when necessary.
Hygiene measures	Observe any medical surveillance requirements. Do not get in eyes. When using, do not eat, drink or smoke. Do not get this material in contact with skin. 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. 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.
Environmental exposure controls	Contain spills and prevent releases and observe national regulations on emissions. Inform appropriate managerial or supervisory personnel of all environmental releases. 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.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	Powder.
Physical state	Not available.
Form	Liquid. Powder.
Colour	Dark grey.
Odour	Garlic.
Odour threshold	Not available.
pH	Not available.
Melting point/freezing point	-114,22 °C (-173,6 °F) estimated
Initial boiling point and boiling range	-85,05 °C (-121,09 °F) estimated
Flash point	Not available.
Evaporation rate	Not available.
Flammability (solid, gas)	Not available.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Vapour pressure	0,00001 hPa estimated
Vapour density	Not available.
Relative density	Not available.
Solubility(ies)	
Solubility (water)	Not available.
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.
Explosive properties	Not explosive.
Oxidising properties	Not oxidising.
9.2. Other information	
Density	1,35 g/cm3 estimated
Molecular formula	Zn3As2
Specific gravity	1,35 estimated

SECTION 10: Stability and reactivity

10.1. Reactivity	Not available.
10.2. Chemical stability	Material is stable under normal conditions.

- 10.3. Possibility of hazardous reactions** No dangerous reaction known under conditions of normal use.
- 10.4. Conditions to avoid** Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. Contact with incompatible materials.
- 10.5. Incompatible materials** Strong acids. Strong oxidising agents.
- 10.6. Hazardous decomposition products** No hazardous decomposition products are known.

SECTION 11: Toxicological information

General information Occupational exposure to the substance or mixture may cause adverse effects.

Information on likely routes of exposure

- Inhalation** Toxic if inhaled.
- Skin contact** Causes severe skin burns. Harmful in contact with skin.
- Eye contact** Causes serious eye damage.
- Ingestion** Toxic if swallowed. Toxic if swallowed. Causes digestive tract burns.

Symptoms Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. Dusts may irritate the respiratory tract, skin and eyes.

11.1. Information on toxicological effects

Acute toxicity Toxic if inhaled. Toxic if swallowed. Toxic if swallowed. Harmful in contact with skin.

Components	Species	Test Results
Hydrogen chloride (HCl) (CAS 7647-01-0)		
Acute		
Dermal		
LD50	Mouse	1449 mg/kg
Oral		
LD50	Rabbit	900 mg/kg
Nitric acid (CAS 7697-37-2)		
Acute		
Inhalation		
LC50	Rat	65 mg/l, 4 Hours
Skin corrosion/irritation	Causes severe skin burns and eye damage.	
Serious eye damage/eye irritation	Causes serious eye damage.	
Respiratory sensitisation	Due to partial or complete lack of data the classification is not possible.	
Skin sensitisation	Due to partial or complete lack of data the classification is not possible.	
Germ cell mutagenicity	Due to partial or complete lack of data the classification is not possible.	
Carcinogenicity	May cause cancer.	
Hungary. 26/2000 EüM Ordinance on protection against and preventing risk relating to exposure to carcinogens at work (as amended)		
Zinc arsenide (CAS 12006-40-5)		
IARC Monographs. Overall Evaluation of Carcinogenicity		
Hydrogen chloride (HCl) (CAS 7647-01-0)	3 Not classifiable as to carcinogenicity to humans.	
Zinc arsenide (CAS 12006-40-5)	1 Carcinogenic to humans.	
Reproductive toxicity	Due to partial or complete lack of data the classification is not possible.	
Specific target organ toxicity - single exposure	Due to partial or complete lack of data the classification is not possible.	
Specific target organ toxicity - repeated exposure	Due to partial or complete lack of data the classification is not possible.	
Aspiration hazard	Due to partial or complete lack of data the classification is not possible.	
Mixture versus substance information	No information available.	
Other information	Not available.	

SECTION 12: Ecological information

12.1. Toxicity Very toxic to aquatic life with long lasting effects. Accumulation in aquatic organisms is expected.

Product	Species	Test Results
Zinc arsenide in 1%HCl:1%HNO3 solution		
Aquatic		
Fish	LC50	Fish
		28200 mg/l, 96 hours estimated

Components	Species	Test Results
Hydrogen chloride (HCl) (CAS 7647-01-0)		
Aquatic		
Fish	LC50	Western mosquitofish (Gambusia affinis)
		282 mg/l, 96 hours

- 12.2. Persistence and degradability** No data is available on the degradability of this product.
- 12.3. Bioaccumulative potential** No data available.
- Partition coefficient n-octanol/water (log Kow)** Not available.
- Bioconcentration factor (BCF)** Not available.
- 12.4. Mobility in soil** No data available.
- 12.5. Results of PBT and vPvB assessment** Not a PBT or vPvB substance or mixture.
- 12.6. 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.
- 12.7. Additional information**

Estonia Dangerous substances in groundwater Data

Hydrogen chloride (HCl) (CAS 7647-01-0) Pesticides (total) 0,5 ug/l
Pesticides (total) 5 ug/l

Estonia Dangerous substances in soil Data

Hydrogen chloride (HCl) (CAS 7647-01-0) Synthetic pesticides (total of active substances) 0,5 mg/kg
Synthetic pesticides (total of active substances) 20 mg/kg
Synthetic pesticides (total of active substances) 5 mg/kg

SECTION 13: Disposal considerations

13.1. Waste treatment methods

- Residual waste** 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). Avoid discharge into water courses or onto the ground.
- Contaminated 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.
- EU waste code** The Waste code should be assigned in discussion between the user, the producer and the waste disposal company.
- Disposal methods/information** Collect and reclaim or dispose in sealed containers at licensed waste disposal site. This material and its container must be disposed of as hazardous waste. Do not discharge into drains, water courses or onto the ground. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. After recovery of solvent dispose of residue as hazardous waste. Dispose of contents/container in accordance with local/regional/national/international regulations.
- Special precautions** Dispose in accordance with all applicable regulations.

SECTION 14: Transport information

- ADR**
- 14.1. UN number** UN1557
- 14.2. UN proper shipping name** Arsenic compounds, solid, n.o.s. inorganic, including arsenates, n.o.s.; arsenites, n.o.s.; arsenic sulfides, n.o.s.; and organic compounds of arsenic, n.o.s.
- 14.3. Transport hazard class(es)**
- Class** 6.1(PGI, II)
- Subsidiary risk** -
- Label(s)** 6.1
- Hazard No. (ADR)** Not available.
- Tunnel restriction code** Not available.
- 14.4. Packing group** II

- 14.5. Environmental hazards** No.
- 14.6. Special precautions for user** Read safety instructions, SDS and emergency procedures before handling.

RID

- 14.1. UN number** UN1557
- 14.2. UN proper shipping name** Arsenic compounds, solid, n.o.s. inorganic, including arsenates, n.o.s.; arsenites, n.o.s.; arsenic sulfides, n.o.s.; and organic compounds of arsenic, n.o.s.
- 14.3. Transport hazard class(es)**
- Class** 6.1(PGI, II)
 - Subsidiary risk** -
 - Label(s)** 6.1
- 14.4. Packing group** II
- 14.5. Environmental hazards** No.
- 14.6. Special precautions for user** Read safety instructions, SDS and emergency procedures before handling.

ADN

- 14.1. UN number** UN1557
- 14.2. UN proper shipping name** Arsenic compounds, solid, n.o.s. inorganic, including arsenates, n.o.s.; arsenites, n.o.s.; arsenic sulfides, n.o.s.; and organic compounds of arsenic, n.o.s.
- 14.3. Transport hazard class(es)**
- Class** 6.1(PGI, II)
 - Subsidiary risk** -
 - Label(s)** 6.1
- 14.4. Packing group** II
- 14.5. Environmental hazards** No.
- 14.6. Special precautions for user** Read safety instructions, SDS and emergency procedures before handling.

IATA

- 14.1. UN number** UN1557
- 14.2. UN proper shipping name** Arsenic compounds, solid, n.o.s. inorganic, including arsenates, n.o.s.; arsenites, n.o.s.; arsenic sulfides, n.o.s.; and organic compounds of arsenic, n.o.s.
- 14.3. Transport hazard class(es)**
- Class** 6.1(PGI, II)
 - Subsidiary risk** -
 - Label(s)** 6.1
- 14.4. Packing group** II
- 14.5. Environmental hazards** No.
- 14.6. Special precautions for user** Read safety instructions, SDS and emergency procedures before handling.

IMDG

- 14.1. UN number** UN1557
- 14.2. UN proper shipping name** Arsenic compounds, solid, n.o.s. inorganic, including arsenates, n.o.s.; arsenites, n.o.s.; arsenic sulfides, n.o.s.; and organic compounds of arsenic, n.o.s.
- 14.3. Transport hazard class(es)**
- Class** 6.1(PGI, II)
 - Subsidiary risk** -
 - Label(s)** 6.1
- 14.4. Packing group** II
- 14.5. Environmental hazards**
- Marine pollutant** No.
- EmS** Not available.
- 14.6. Special precautions for user** Read safety instructions, SDS and emergency procedures before handling.



SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

EU regulations

Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex I and II, as amended

Not listed.

Regulation (EC) No. 850/2004 On persistent organic pollutants, Annex I as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 1 as amended

Zinc arsenide (CAS 12006-40-5)

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 2 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 3 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex V as amended

Not listed.

Regulation (EC) No. 166/2006 Annex II Pollutant Release and Transfer Registry, as amended

Hydrogen chloride (HCl) (CAS 7647-01-0)

Regulation (EC) No. 1907/2006, REACH Article 59(10) Candidate List as currently published by ECHA

Not listed.

Authorisations

Regulation (EC) No. 1907/2006, REACH Annex XIV Substances subject to authorization, as amended

Not listed.

Restrictions on use

Regulation (EC) No. 1907/2006, REACH Annex XVII Substances subject to restriction on marketing and use as amended

Not listed.

Directive 2004/37/EC: on the protection of workers from the risks related to exposure to carcinogens and mutagens at work, as amended.

Not listed.

Other EU regulations

Directive 2012/18/EU on major accident hazards involving dangerous substances, as amended

Hydrogen chloride (HCl) (CAS 7647-01-0)

Nitric acid (CAS 7697-37-2)

Zinc arsenide (CAS 12006-40-5)

Other regulations

The product is classified and labelled in accordance with Regulation (EC) 1272/2008 (CLP Regulation) as amended. This Safety Data Sheet complies with the requirements of Regulation (EC) No 1907/2006, as amended.

National regulations

According to Directive 92/85/EEC as amended, pregnant women should not work with the product, if there is the least risk of exposure.

Young people under 18 years old are not allowed to work with this product according to EU Directive 94/33/EC on the protection of young people at work, as amended. Follow national regulation on the protection of workers from the risks of exposure to carcinogens and mutagens at work, in accordance with Directive 2004/37/EC, as amended.

15.2. Chemical safety assessment

No Chemical Safety Assessment has been carried out.

SECTION 16: Other information

List of abbreviations

Not available.

References

ACGIH

EPA: AQUIRE database

NLM: Hazardous Substances Data Base

US. IARC Monographs on Occupational Exposures to Chemical Agents

Training information

Follow training instructions when handling this material.

Disclaimer

Materion Advanced Chemicals Inc. cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used.

It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. Additional information is given in the Material Safety Data Sheet.

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