

Material Safety Data Sheet

Arsenic standard solution, CertiPUR®



Section 1. Product and Company Identification

Product name : Arsenic standard solution, CertiPUR®
Product code : 1.19773
Synonym : None.
Trade name : Standard solution traceable to SRM from NIST
Material uses : Other non-specified industry: Analytical reagent.
Manufacturer : EMD Chemicals Inc.
P.O. Box 70
480 Democrat Road
Gibbstown, NJ 08027
856-423-6300 Technical Service
Monday - Friday: 8:00 - 5:00 PM
Validation date : 5/14/2008.
Print date : 5/14/2008.
In case of emergency : 800-424-9300 CHEMTREC (USA)
613-996-6666 CANUTEC (Canada)
24 Hours/Day: 7 Days/Week

Section 2. Hazards Identification

Physical state : Liquid.
Odor : Odorless.
OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Emergency overview : DANGER!
MAY BE FATAL IF SWALLOWED.
CAUSES RESPIRATORY TRACT, EYE AND SKIN BURNS.
CANCER HAZARD.
CONTAINS MATERIAL WHICH CAN CAUSE CANCER.
HARMFUL IF INHALED.
CONTAINS MATERIAL WHICH CAUSES DAMAGE TO THE FOLLOWING ORGANS:
LUNGS, MUCOUS MEMBRANES, RESPIRATORY TRACT, SKIN, EYE, LENS OR CORNEA, TEETH.
WARNING: This product contains a chemical(s) known to the State of California to cause cancer.
Do not ingest. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Keep container closed. Use only with adequate ventilation. Wash thoroughly after handling. Risk of cancer depends on duration and level of exposure.
Routes of entry : Dermal contact. Eye contact. Inhalation. Ingestion.
Potential acute health effects
Eyes : Corrosive to eyes.
Skin : Corrosive to the skin.
Inhalation : Toxic by inhalation. Corrosive to the respiratory system.
Ingestion : Very toxic if swallowed. May cause burns to mouth, throat and stomach.
Carcinogenic effects : Contains material which can cause cancer. Risk of cancer depends on duration and level of exposure.
Mutagenic effects : No known significant effects or critical hazards.
Teratogenicity / Reproductive toxicity : No known significant effects or critical hazards.

Continued on Next Page

Section 2. Hazards Identification

Medical conditions aggravated by over-exposure : Repeated skin exposure can produce local skin destruction or dermatitis. Repeated or prolonged exposure to the substance can produce lung damage. Repeated or prolonged contact with spray or mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to the substance can produce target organs damage.

See toxicological information (section 11)

Section 3. Composition/Information on Ingredients

United States

<u>Name</u>	<u>CAS number</u>	<u>% by Weight</u>
Water	7732-18-5	>94
Nitric Acid	7697-37-2	≥ 1 - < 5
Arsenic Acid	7778-39-4	≥ 0.25 - < 1

Section 4. First Aid Measures

- Eye contact** : Get medical attention immediately. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Chemical burns must be treated promptly by a physician.
- Skin contact** : Get medical attention immediately. Flush contaminated skin with plenty of water. Continue to rinse for at least 10 minutes. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing or wear gloves. Chemical burns must be treated promptly by a physician. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Inhalation** : Get medical attention immediately. Move exposed person to fresh air. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Ingestion** : Get medical attention immediately. Wash out mouth with water. Remove dentures if any. Move exposed person to fresh air. Keep person warm and at rest. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Chemical burns must be treated promptly by a physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing or wear gloves.

Section 5. Fire Fighting Measures

Flammability of the product : No specific hazard.

Extinguishing media

Suitable : Use an extinguishing agent suitable for the surrounding fire.

Not suitable : None known.

Special exposure hazards : Not available.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 5. Fire Fighting Measures

Special remarks on explosion hazards : Can react explosively with certain reducing agents and combustibles: such as metal powders, carbides, H₂ and turpentine. (Nitric Acid)

Section 6. Accidental Release Measures

Personal precautions : Immediately contact emergency personnel. Keep unnecessary personnel away. Use suitable protective equipment.

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Methods for cleaning up : If emergency personnel are unavailable, contain spilled material. For small spills, add absorbent (soil may be used in the absence of other suitable materials), scoop up material and place in a sealable, liquid-proof container for disposal. For large spills, dike spilled material or otherwise contain material to ensure runoff does not reach a waterway. Place spilled material in an appropriate container for disposal.

Section 7. Handling and Storage

Handling : Do not ingest. Do not get in eyes or on skin or clothing. Keep container closed. Use only with adequate ventilation. Do not breathe vapor or mist. Wash thoroughly after handling.

Storage : Keep container tightly closed. Keep container in a cool, well-ventilated area.

Section 8. Exposure Controls/Personal Protection

Product name

Exposure limits

United States

Nitric Acid

ACGIH TLV (United States, 1/2006).

STEL: 10 mg/m³ 15 minute/minutes.

STEL: 4 ppm 15 minute/minutes.

TWA: 5.2 mg/m³ 8 hour/hours.

TWA: 2 ppm 8 hour/hours.

NIOSH REL (United States, 12/2001).

STEL: 10 mg/m³ 15 minute/minutes.

STEL: 4 ppm 15 minute/minutes.

TWA: 5 mg/m³ 10 hour/hours.

TWA: 2 ppm 10 hour/hours.

OSHA PEL (United States, 8/1997).

TWA: 5 mg/m³ 8 hour/hours.

TWA: 2 ppm 8 hour/hours.

OSHA PEL 1989 (United States, 3/1989).

STEL: 10 mg/m³ 15 minute/minutes.

STEL: 4 ppm 15 minute/minutes.

TWA: 5 mg/m³ 8 hour/hours.

TWA: 2 ppm 8 hour/hours.

Arsenic Acid

ACGIH TLV (United States, 2000). Notes: Substance identified by other sources as a suspected or confirmed human carcinogen. Identifies substances identified in the BEI documentations for Methemoglobin inducers (for which methemoglobin is the principle toxicity) and organophosphorous cholinesterase inhibitors are part of this notation. Substances for which the TLV is higher than the OSHA Permissible Exposure Limit (PEL) and/or the NIOSH Recommended Exposure Limit (REL). See CFR 58(124) :36338-33351, June 30, 1993, for revised OSHA PEL. Refers to Appendix A -- Carcinogens.

TWA: 0.01 mg/m³ 8 hour/hours.

OSHA PEL 1989 (United States, 1989). Notes: Sec. 1910.1018 Inorganic arsenic.

TWA: 10 µg/m³ 8 hour/hours.

Consult local authorities for acceptable exposure limits.

Section 8. Exposure Controls/Personal Protection

Engineering measures	: Use only with adequate ventilation. If user operations generate dust, fumes, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.
Personal protection	
Eyes	: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. Recommended: splash goggles , face shield
Skin	: Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Body: Recommended: safety apron
Respiratory	: Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
Hands	: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Recommended: nitrile rubber
Hygiene measures	: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Section 9. Physical and Chemical Properties

Physical state	: Liquid.
Color	: Colorless.
Odor	: Odorless.
pH	: 0.5 [Acidic.]
Boiling/condensation point	: The lowest known value is 83.89°C (183°F) (Nitric Acid). Weighted average: 99.55°C (211.2°F)
Melting/freezing point	: May start to solidify at -0.1°C (31.8°F) based on data for: Water. Weighted average: -0.99°C (30.2°F)
Relative density	: 1.013 (Water = 1)
Evaporation rate	: 0.36 (Water) compared with(n-Butyl Acetate =1)

Section 10. Stability and Reactivity

Stability and reactivity	: The product is stable.
Incompatibility with various substances	: Reactive or incompatible with the following materials: oxidizing materials, combustible materials, organic materials, metals, acids and alkalis.
Hazardous decomposition products	: As(g)
Hazardous polymerization	: Will not occur.

Section 11. Toxicological Information

Toxicity data

United States

<u>Product/ingredient name</u>	<u>Test</u>	<u>Result</u>	<u>Route</u>	<u>Species</u>
--------------------------------	-------------	---------------	--------------	----------------

Section 11. Toxicological Information

Nitric Acid	LDLo	430 mg/kg	Oral	human
Arsenic Acid	LD50	48 mg/kg	Oral	Rat
	LDLo	5 mg/kg	Oral	Rabbit
	LDLo	10 mg/kg	Oral	Dog
	LDLo	100 mg/kg	Oral	pigeon

Chronic effects on humans : **CARCINOGENIC EFFECTS** Classified A1 (Confirmed for humans.) by ACGIH, + (Proven.) by OSHA [Arsenic Acid].
Contains material which causes damage to the following organs: lungs, mucous membranes, upper respiratory tract, skin, eye, lens or cornea, teeth.

Other toxic effects on humans : Extremely hazardous in case of ingestion.
Very hazardous in case of skin contact (corrosive), of eye contact (corrosive), of inhalation (lung corrosive).

Special remarks on other toxic effects on humans : Symptoms Of Lung Injury May Be Delayed. (Nitric Acid)

Specific effects

Carcinogenic effects : Contains material which can cause cancer. Risk of cancer depends on duration and level of exposure.

Mutagenic effects : No known significant effects or critical hazards.

Teratogenicity / Reproductive toxicity : No known significant effects or critical hazards.

Sensitization

Ingestion : May cause burns to mouth, throat and stomach.

Inhalation : Corrosive to the respiratory system.

Eyes : Corrosive to eyes.

Skin : Corrosive to the skin.

Section 12. Ecological Information

Environmental precautions : No known significant effects or critical hazards.

Products of degradation : These products are nitrogen oxides (NO, NO₂ etc.).

Toxicity of the products of biodegradation : The products of degradation are less toxic than the product itself.

Section 13. Disposal Considerations

Waste disposal : The generation of waste should be avoided or minimized wherever possible. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements.

Disposal should be in accordance with applicable regional, national and local laws and regulations. Local regulations may be more stringent than regional or national requirements.

The information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

Section 14. Transport Information

Regulatory information	UN number	Proper shipping name	Class	PG*	Label	Additional information
DOT Classification	UN3264	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (CONTAINS NITRIC ACID)	8	III		Not available.

PG* : Packing group

Section 15. Regulatory Information

United States

HCS Classification : Highly toxic material
Corrosive material
Carcinogen
Target organ effects

U.S. Federal regulations : TSCA 8(b) inventory: Listed
SARA 302/304/311/312 extremely hazardous substances: Nitric Acid
SARA 302/304 emergency planning and notification: Nitric Acid
SARA 302/304/311/312 hazardous chemicals: Nitric Acid
SARA 311/312 MSDS distribution - chemical inventory - hazard identification: Nitric Acid:
Fire hazard, reactive, Immediate (acute) health hazard
Clean Water Act (CWA) 307: Arsenic Acid
Clean Water Act (CWA) 311: Nitric Acid
Clean Air Act (CAA) 112 accidental release prevention: Nitric Acid
Clean Air Act (CAA) 112 regulated flammable substances: No products were found.
Clean Air Act (CAA) 112 regulated toxic substances: Nitric Acid

SARA 313

	<u>Product name</u>	<u>CAS number</u>	<u>Concentration</u>
Form R - Reporting requirements	: Nitric Acid	7697-37-2	≥ 1 - < 5
Supplier notification	: Nitric Acid	7697-37-2	≥ 1 - < 5

SARA 313 notifications must not be detached from the MSDS and any copying and redistribution of the MSDS shall include copying and redistribution of the notice attached to copies of the MSDS subsequently redistributed.

State regulations : Pennsylvania RTK: Arsenic Acid: (environmental hazard, generic environmental hazard); Nitric Acid: (environmental hazard, generic environmental hazard)
Massachusetts RTK: Arsenic Acid; Nitric Acid
New Jersey: Arsenic Acid; Nitric Acid; Water
WARNING: This product contains a chemical(s) known to the State of California to cause cancer.

<u>Ingredient name</u>	<u>Cancer</u>	<u>Reproductive</u>	<u>No significant risk level</u>	<u>Maximum acceptable dosage level</u>
Arsenic Acid	Yes.	No.	No.	No.

Canada

WHMIS (Canada) : Class D-1B: Material causing immediate and serious toxic effects (Toxic).
Class E: Corrosive material

Section 15. Regulatory Information

CEPA DSL/CEPA NDSL : CEPA DSL: Nitric Acid; Water

This product has been classified according to the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

EU regulations

Risk phrases : This product is not classified according to EU legislation.

International regulations

International lists : Australia (NICNAS): Arsenic Acid; Nitric Acid; Water

China: Arsenic Acid; Nitric Acid

Germany water class: Arsenic Acid; Nitric Acid

Japan (METI): Arsenic Acid; Nitric Acid; Water

Korea (TCCL): Arsenic Acid; Nitric Acid; Water

Philippines (RA6969): Nitric Acid; Water

Section 16. Other Information

Label requirements

: DANGER!

MAY BE FATAL IF SWALLOWED.

CAUSES RESPIRATORY TRACT, EYE AND SKIN BURNS.

CANCER HAZARD.

CONTAINS MATERIAL WHICH CAN CAUSE CANCER.

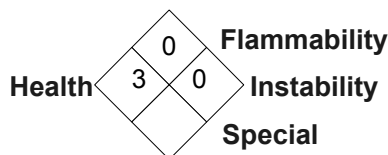
HARMFUL IF INHALED.

CONTAINS MATERIAL WHICH CAUSES DAMAGE TO THE FOLLOWING ORGANS:
LUNGS, MUCOUS MEMBRANES, RESPIRATORY TRACT, SKIN, EYE, LENS OR
CORNEA, TEETH.

WARNING: This product contains a chemical(s) known to the State of California to cause cancer.

National Fire Protection Association (U.S.A.)

:



Notice to reader

The statements contained herein are based upon technical data that EMD Chemicals Inc. believes to be reliable, are offered for information purposes only and as a guide to the appropriate precautionary and emergency handling of the material by a properly trained person having the necessary technical skills. Users should consider these data only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use, storage and disposal of these materials and the safety and health of employees and customers and the protection of the environment. EMD CHEMICALS INC. MAKES NO REPRESENTATION OR WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE, WITH RESPECT TO THE INFORMATION HEREIN OR THE PRODUCT TO WHICH THE INFORMATION REFERS.