

High-Purity Standards

Catalogue number: IC-2-A
Version No: 2.2
Safety Data Sheet according to OSHA HazCom Standard (2012) requirements

Chemwatch Hazard Alert Code: 0

Issue Date: **08/31/2016**Print Date: **08/31/2016**S.GHS.USA.EN

SECTION 1 IDENTIFICATION

Product Identifier

Product name	IC-2 Solution A
Synonyms	IC-2-A
Other means of identification	IC-2-A

Recommended use of the chemical and restrictions on use

ording to manufacturer's directions.

Name, address, and telephone number of the chemical manufacturer, importer, or other responsible party

Registered company name	High-Purity Standards
Address	PO Box 41727 SC 29423 United States
Telephone	843-767-7900
Fax	843-767-7906
Website	highpuritystandards.com
Email	Not Available

Emergency phone number

Association / Organisation	INFOTRAC
Emergency telephone numbers	1-800-535-5053
Other emergency telephone numbers	1-352-323-3500

SECTION 2 HAZARD(S) IDENTIFICATION

Classification of the substance or mixture

Classification Carcinogenicity Category 2

Label elements

GHS label elements



SIGNAL WORD

WARNING

Hazard statement(s)

H351 Suspected of causing cancer.

Hazard(s) not otherwise specified

Not Applicable

Precautionary statement(s) Prevention

P201 Obtain special instructions before use.

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Precautionary statement(s) Response

P308+P313 IF exposed or concerned: Get medical advice/attention.

Precautionary statement(s) Storage

P405 Store locked up.

Precautionary statement(s) Disposal

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

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

Substances

See section below for composition of Mixtures

Mixtures

CAS No	%[weight]	Name
7647-15-6	0.1 (as Br)	sodium bromide
7647-14-5	0.1 (as CI)	sodium chloride
7681-49-4	0.1 (as F)	sodium fluoride
7631-99-4	0.1 (as NO3)	sodium nitrate
7722-76-1	0.1 (as NH4)	ammonium phosphate, monobasic
7757-82-6	0.1 (as SO4)	sodium sulfate
7732-18-5	balance	water

SECTION 4 FIRST-AID MEASURES

Description of first aid measures

	4
Eye Contact	If this product comes in contact with eyes: Wash out immediately with water. If irritation continues, seek medical attention. Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.
Skin Contact	If skin or hair contact occurs: ► Flush skin and hair with running water (and soap if available). ► Seek medical attention in event of irritation.
Inhalation	 If fumes, aerosols or combustion products are inhaled remove from contaminated area. Other measures are usually unnecessary.
Ingestion	 Immediately give a glass of water. First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor.

Most important symptoms and effects, both acute and delayed

See Section 11

Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5 FIRE-FIGHTING MEASURES

Extinguishing media

- ▶ There is no restriction on the type of extinguisher which may be used.
- Use extinguishing media suitable for surrounding area.

Fire Incompatibility None known.

Special hazards arising from the substrate or mixture

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Special protective equipment and precautions for fire-fighters

Fire Fighting	► Alert Fire Brigade and tell them location and nature of hazard.
Fire/Explosion Hazard	► Non combustible. May emit poisonous fumes.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

See section 8

Environmental precautions

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See section 12

Methods and material for containment and cleaning up

Minor Spills	 Clean up all spills immediately. 			
Major Spills	Moderate hazard.			

Personal Protective Equipment advice is contained in Section 8 of the SDS.

SECTION 7 HANDLING AND STORAGE

Precautions for safe handling

Safe handling	► Avoid all personal contact, including inhalation.
Other information	

Conditions for safe storage, including any incompatibilities

Suitable container	► Polyethylene or polypropylene container.
Storage incompatibility	None known

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

OCCUPATIONAL EXPOSURE LIMITS (OEL)

INGREDIENT DATA

Source	Ingredient	Material name	TWA	STEL	Peak	Notes		
US OSHA Permissible Exposure Levels (PELs) - Table Z1	sodium fluoride	Fluorides	2.5 mg/m3	Not Available	Not Available	as F)		
US OSHA Permissible Exposure Levels (PELs) - Table Z2	sodium fluoride	Fluoride as dust	2.5 mg/m3	Not Available	Not Available	(Z37.28–1969)		
US ACGIH Threshold Limit Values (TLV)	sodium fluoride	Fluorides, as F	2.5 mg/m3	Not Available	Not Available	TLV® Basis: Bone dam; fluorosis; BEI		
US NIOSH Recommended Exposure Limits (RELs)	sodium fluoride	Floridine, Sodium monofluoride	2.5 mg/m3	Not Available	Not Available	[*Note: The REL also applies to other inorganic, solid fluorides (as F).]		

EMERGENCY LIMITS

Ingredient	Material name	TEEL-1	TEEL-2	TEEL-3
sodium bromide	Sodium bromide	0.3 mg/m3	3.3 mg/m3	690 mg/m3
sodium chloride	Chloride; (Chloride(1-); Chloride ions)	1 ppm	2.52 ppm	30 ppm
sodium chloride	Sodium chloride	11 mg/m3	120 mg/m3	1100 mg/m3
sodium fluoride	Sodium fluoride	5.5 mg/m3	5.5 mg/m3	1100 mg/m3
sodium nitrate	Sodium nitrate	12 mg/m3	130 mg/m3	250 mg/m3
ammonium phosphate, monobasic	Ammonium dihydrogen phosphate; (Monoammonium phosphate)	12 mg/m3	130 mg/m3	790 mg/m3
sodium sulfate	Sodium sulfate, anhydrous	11 mg/m3	130 mg/m3	650 mg/m3

Ingredient	Original IDLH	Revised IDLH
sodium bromide	Not Available	Not Available
sodium chloride	Not Available	Not Available
sodium fluoride	500 mg/m3	250 mg/m3
sodium nitrate	Not Available	Not Available
ammonium phosphate, monobasic	Not Available	Not Available
sodium sulfate	Not Available	Not Available
water	Not Available	Not Available

Exposure controls

Appropriate engineering controls

Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard.

Personal protection







Eye and face protection

- ► Safety glasses with side shields
- ► Chemical goggles.

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IC-2 Solution A

Skin protection	See Hand protection below
Hands/feet protection	The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. • Wear chemical protective gloves, e.g. PVC.
Body protection	See Other protection below
Other protection	► Overalls.
Thermal hazards	Not Available

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	colorless		
Physical state	Liquid	Relative density (Water = 1)	Not Available
Odour	Not Available	Partition coefficient n-octanol / water	Not Available
Odour threshold	Not Available	Auto-ignition temperature (°C)	Not Available
pH (as supplied)	Not Available	Decomposition temperature	Not Available
Melting point / freezing point (°C)	Not Available	Viscosity (cSt)	Not Available
Initial boiling point and boiling range (°C)	Not Available	Molecular weight (g/mol)	Not Available
Flash point (°C)	Not Available	Taste	Not Available
Evaporation rate	Not Available	Explosive properties	Not Available
Flammability	Not Available	Oxidising properties	Not Available
Upper Explosive Limit (%)	Not Available	Surface Tension (dyn/cm or mN/m)	Not Available
Lower Explosive Limit (%)	Not Available	Volatile Component (%vol)	Not Available
Vapour pressure (kPa)	Not Available	Gas group	Not Available
Solubility in water (g/L)	Miscible	pH as a solution (1%)	Not Available
Vapour density (Air = 1)	Not Available	VOC g/L	Not Available

SECTION 10 STABILITY AND REACTIVITY

Reactivity	See section 7
Chemical stability	► Unstable in the presence of incompatible materials.
Possibility of hazardous reactions	See section 7
Conditions to avoid	See section 7
Incompatible materials	See section 7
Hazardous decomposition products	See section 5

SECTION 11 TOXICOLOGICAL INFORMATION

Information on toxicological effects

Inhaled	The material is not thought to produce adverse health effects or irritation of the respiratory tract (as classified by EC Directives using animal models).	
Ingestion	The material has NOT been classified by EC Directives or other classification systems as "harmful by ingestion".	
Skin Contact	The material is not thought to produce adverse health effects or skin irritation following contact (as classified by EC Directives using animal models). Open cuts, abraded or irritated skin should not be exposed to this material Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects.	
Eye	Although the liquid is not thought to be an irritant (as classified by EC Directives), direct contact with the eye may produce transient discomfort characterised by tearing or conjunctival redness (as with windburn).	
Chronic	There has been concern that this material can cause cancer or mutations, but there is not enough data to make an assessment.	
IC-2 Solution A	TOXICITY Not Available	IRRITATION Not Available

sodium	bromide
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TOXICITY	IRRITATION
Dermal (rabbit) LD50: >2000 mg/kg ^[1]	Nil reported
Oral (rat) LD50: 2500 mg/kg ^[2]	

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	TOXICITY	IRRITATIO			
sodium chloride	Dermal (rabbit) LD50: >10000 mg/kg ^[1]			ate	
	Oral (rat) LD50: 3000 mg/kg ^[2]) mg/24h - moderate	
		Skin (rabbit): 500 mg/24h - r	mild	
	TOXICITY	IRRITATIO	ON		
sodium fluoride	dermal (rat) LD50: >2000 mg/kg ^[1]			oderate	
	Oral (rat) LD50: >25-<2000 mg/kg> ^[1]				
	TOXICITY			IRRITATION	
sodium nitrate	dermal (rat) LD50: >5000 mg/kg ^[1]			Nil reported	
	Oral (rat) LD50: 1267 mg/kg ^[2]				
	TOXICITY			IRRITATION	
ammonium phosphate,					
monobasic	dermal (rat) LD50: >5000 mg/kg ^[1]			Not Available	
	Oral (rat) LD50: >1000 mg/kg ^[1]				
	TOXICITY		IR	RITATION	
sodium sulfate	Oral (rat) LD50: >2000 mg/kg ^[1]		Ni	il reported	
	TOVICITY				
water	TOXICITY		11	RRITATION	
water	Oral (rat) LD50: >90000 mg/kg ^[2]			Not Available	
water Legend:		alue obtained	ı	Not Available	ed data
	Oral (rat) LD50: >90000 mg/kg ^[2] 1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2.* Va		from manufactur	Not Available rer's SDS. Unless otherwise specific	
Legend:	Oral (rat) LD50: >90000 mg/kg ^[2] 1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2.* Value obtained from RTECS - Register of Toxic Effect of chemical Substances The material may cause skin irritation after prolonged or repeated exposure and ma		from manufactur	Not Available rer's SDS. Unless otherwise specific	
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SECTION 12 ECOLOGICAL INFORMATION

Toxicity

Value Ingredient Endpoint Test Duration (hr) Species Source

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sodium bromide	LC50	96	Fish	0.19mg/L	4
odium bromide	EC50	48	Crustacea	0.0000067mg/L	5
sodium bromide	EC50	72	Algae or other aquatic plants	>400mg/L	2
sodium bromide	BCF	144	Crustacea	53.11mg/L	4
sodium bromide	EC50	48	Crustacea	0.0000076mg/L	5
sodium bromide	NOEC	384	Crustacea	2.8mg/L	2
sodium chloride	LC50	96	Fish	620.199mg/L	3
sodium chloride	EC50	48	Crustacea	402.6mg/L	4
sodium chloride	EC50	96	Algae or other aquatic plants	2430mg/L	4
sodium chloride	EC50	384	Crustacea	140.582mg/L	3
sodium chloride	NOEC	6	Fish	0.001mg/L	4
sodium fluoride	LC50	96	Fish	51mg/L	2
sodium fluoride	EC50	48	Crustacea	58mg/L	4
sodium fluoride	EC50	96	Algae or other aquatic plants	43mg/L	2
sodium fluoride	BCF	240	Fish	5mg/L	4
sodium fluoride	EC10	24	Crustacea	0.2921000mg/L	4
sodium fluoride	NOEC	504	Crustacea	3.7mg/L	2
sodium nitrate	LC50	96	Fish	>98.9mg/L	2
sodium nitrate	EC50	48	Crustacea	3581mg/L	2
sodium nitrate	EC50	96	Algae or other aquatic plants	1181.887mg/L	3
sodium nitrate	EC50	384	Crustacea	49.116mg/L	3
sodium nitrate	NOEC	2880	Fish	1.6mg/L	4
ammonium phosphate, monobasic	LC50	96	Fish	>85.9mg/L	2
ammonium phosphate, monobasic	EC50	72	Algae or other aquatic plants	>97.1mg/L	2
ammonium phosphate, monobasic	EC50	72	Algae or other aquatic plants	>97.1mg/L	2
ammonium phosphate, monobasic	NOEC	72	Algae or other aquatic plants	3.57mg/L	2
sodium sulfate	LC50	96	Fish	ca.56mg/L	2
sodium sulfate	EC50	48	Crustacea	2564mg/L	2
sodium sulfate	EC50	96	Algae or other aquatic plants	105.72278mg/L	3
sodium sulfate	EC0	360	Algae or other aquatic plants	4mg/L	1
sodium sulfate	NOEC	168	Fish	<220mg/L	4
water	LC50	96	Fish	897.520mg/L	3
water	EC50	96	Algae or other aquatic plants	8768.874mg/L	3
water	EC50	384	Crustacea	199.179mg/L	3

Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data

For Fluorides: Small amounts of fluoride have beneficial effects however; excessive intake over long periods may cause dental and/or skeletal fluorosis.

Persistence and degradability

DO NOT discharge into sewer or waterways.

Ingredient	Persistence: Water/Soil	Persistence: Air
sodium bromide	HIGH	HIGH
sodium chloride	LOW	LOW
sodium fluoride	LOW	LOW
sodium nitrate	LOW	LOW
ammonium phosphate, monobasic	нівн	HIGH
sodium sulfate	HIGH	HIGH
water	LOW	LOW

Bioaccumulative potential

Ingredient	Bioaccumulation
sodium bromide	LOW (LogKOW = -0.3713)
sodium chloride	LOW (LogKOW = 0.5392)
sodium fluoride	LOW (BCF = 6.4)
sodium nitrate	LOW (LogKOW = 0.209)

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ammonium phosphate, monobasic	LOW (LogKOW = -0.7699)
sodium sulfate	LOW (LogKOW = -2.2002)
water	LOW (LogKOW = -1.38)

Mobility in soil

Ingredient	Mobility
sodium bromide	LOW (KOC = 14.3)
sodium chloride	LOW (KOC = 14.3)
sodium fluoride	LOW (KOC = 14.3)
sodium nitrate	LOW (KOC = 14.3)
ammonium phosphate, monobasic	HIGH (KOC = 1)
sodium sulfate	LOW (KOC = 6.124)
water	LOW (KOC = 14.3)

SECTION 13 DISPOSAL CONSIDERATIONS

Waste treatment methods

Product / Packaging disposal

- Containers may still present a chemical hazard/ danger when empty.
- Legislation addressing waste disposal requirements may differ by country, state and/ or territory.
- ▶ Recycle wherever possible

SECTION 14 TRANSPORT INFORMATION

Labels Required

Marine Pollutant NO

Land transport (DOT): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

Air transport (ICAO-IATA / DGR): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

Sea transport (IMDG-Code / GGVSee): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

Transport in bulk according to Annex II of MARPOL and the IBC code

Not Applicable

SECTION 15 REGULATORY INFORMATION

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

SODIUM BROMIDE(7647-15-6) IS FOUND ON THE FOLLOWING REGULATORY LISTS

US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

SODIUM CHLORIDE(7647-14-5) IS FOUND ON THE FOLLOWING REGULATORY LISTS

US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

SODIUM FLUORIDE(7681-49-4) IS FOUND ON THE FOLLOWING REGULATORY LISTS

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs

US - Alaska Limits for Air Contaminants

US - California OEHHA/ARB - Acute Reference Exposure Levels and Target Organs (RELs) US - California OEHHA/ARB - Chronic Reference Exposure Levels and Target Organs

(CRELs)

US - California Permissible Exposure Limits for Chemical Contaminants

US - Hawaii Air Contaminant Limits

US - Idaho - Limits for Air Contaminants

US - Michigan Exposure Limits for Air Contaminants

US - Minnesota Permissible Exposure Limits (PELs)

US - Oregon Permissible Exposure Limits (Z-1)

US - Oregon Permissible Exposure Limits (Z-2)

US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants

US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants

SODIUM NITRATE(7631-99-4) IS FOUND ON THE FOLLOWING REGULATORY LISTS

US EPCRA Section 313 Chemical List

US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants

US - Washington Permissible exposure limits of air contaminants

US - Washington Toxic air pollutants and their ASIL, SQER and de minimis emission values

US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants

US - Wyoming Toxic and Hazardous Substances Table Z-2 Acceptable ceiling concentration,

Acceptable maximum peak above the acceptable ceiling concentration for an 8-hr shift

US ACGIH Threshold Limit Values (TLV)

US ACGIH Threshold Limit Values (TLV) - Carcinogens

US ATSDR Minimal Risk Levels for Hazardous Substances (MRLs)

US NIOSH Recommended Exposure Limits (RELs) US OSHA Permissible Exposure Levels (PELs) - Table Z1

US OSHA Permissible Exposure Levels (PELs) - Table Z2 $\,$

US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

AMMONIUM PHOSPHATE, MONOBASIC(7722-76-1) IS FOUND ON THE FOLLOWING REGULATORY LISTS

US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

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SODIUM SULFATE(7757-82-6) IS FOUND ON THE FOLLOWING REGULATORY LISTS

US - California OEHHA/ARB - Acute Reference Exposure Levels and Target Organs (RELs)

US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

US - Washington Toxic air pollutants and their ASIL, SQER and de minimis emission values

WATER(7732-18-5) IS FOUND ON THE FOLLOWING REGULATORY LISTS

US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

Federal Regulations

Superfund Amendments and Reauthorization Act of 1986 (SARA)

SECTION 311/312 HAZARD CATEGORIES

Immediate (acute) health hazard	No
Delayed (chronic) health hazard	Yes
Fire hazard	No
Pressure hazard	No
Reactivity hazard	No

US. EPA CERCLA HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES (40 CFR 302.4)

Name	Reportable Quantity in Pounds (lb)	Reportable Quantity in kg
Sodium fluoride	1000	454

State Regulations

US. CALIFORNIA PROPOSITION 65

None Reported

National Inventory	Status
Australia - AICS	Υ
Canada - DSL	Υ
Canada - NDSL	N (sodium bromide; ammonium phosphate, monobasic; water; sodium fluoride; sodium sulfate; sodium nitrate; sodium chloride)
China - IECSC	Υ
Europe - EINEC / ELINCS / NLP	Y
Japan - ENCS	N (water)
Korea - KECI	Y
New Zealand - NZIoC	Y
Philippines - PICCS	Υ
USA - TSCA	Υ
Legend:	Y = All ingredients are on the inventory N = Not determined or one or more ingredients are not on the inventory and are not exempt from listing(see specific ingredients in brackets)

SECTION 16 OTHER INFORMATION

Other information

Ingredients with multiple cas numbers

Name	CAS No
sodium chloride	7647-14-5, 14762-51-7, 16887-00-6
sodium sulfate	7757-82-6, 15124-09-1, 1337-28-6

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chernwatch Classification committee using available literature references.

The SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment.

Definitions and abbreviations

PC-TWA: Permissible Concentration-Time Weighted Average

PC-STEL: Permissible Concentration-Short Term Exposure Limit

IARC: International Agency for Research on Cancer

ACGIH: American Conference of Governmental Industrial Hygienists

STEL: Short Term Exposure Limit

TEEL: Temporary Emergency Exposure Limit.

IDLH: Immediately Dangerous to Life or Health Concentrations

OSF: Odour Safety Factor

NOAEL :No Observed Adverse Effect Level

LOAEL: Lowest Observed Adverse Effect Level

TLV: Threshold Limit Value

LOD: Limit Of Detection

OTV: Odour Threshold Value BCF: BioConcentration Factors

BEI: Biological Exposure Index

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