IC-2 Solution A

High-Purity Standards

Chemwatch Hazard Alert Code: **0**

Catalogue number: **IC-2 Solution A**
Version No: **1.1**
Safety Data Sheet according to OSHA HazCom Standard (2012) requirements

Issue Date: **08/19/2016**
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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 Solution A

Recommended use of the chemical and restrictions on use

Relevant identified uses	Use according 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.

Continued...

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	sodium bromide
7647-14-5	0.1	sodium chloride
7681-49-4	0.1	sodium fluoride
7631-99-4	0.1	sodium nitrate
7722-76-1	0.1	ammonium phosphate, monobasic
7757-82-6	0.1	sodium sulfate
7732-18-5	balance	water

SECTION 4 FIRST-AID MEASURES

Description of first aid measures

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.

Special hazards arising from the substrate or mixture

Fire Incompatibility	None known.

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

Continued...

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.

Continued...

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**	**IRRITATION**
	Not Available	Not Available
sodium bromide	**TOXICITY**	**IRRITATION**
	Dermal (rabbit) LD50: >2000 mg/kg[1]	Nil reported
	Oral (rat) LD50: 2500 mg/kg[2]	

Continued...

sodium chloride	

TOXICITY	IRRITATION
Dermal (rabbit) LD50: >10000 mg/kg[1]	Eye (rabbit): 10 mg - moderate
Oral (rat) LD50: 3000 mg/kg[2]	Eye (rabbit):100 mg/24h - moderate
	Skin (rabbit): 500 mg/24h - mild

sodium fluoride

TOXICITY	IRRITATION
dermal (rat) LD50: >2000 mg/kg[1]	Eye (rabbit): 20 mg/24h-moderate
Oral (rat) LD50: >25-<2000 mg/kg>[1]	

sodium nitrate

TOXICITY	IRRITATION
dermal (rat) LD50: >5000 mg/kg[1]	Nil reported
Oral (rat) LD50: 1267 mg/kg[2]	

ammonium phosphate, monobasic

TOXICITY	IRRITATION
dermal (rat) LD50: >5000 mg/kg[1]	Not Available
Oral (rat) LD50: >1000 mg/kg[1]	

sodium sulfate

TOXICITY	IRRITATION
Oral (rat) LD50: >2000 mg/kg[1]	Nil reported

water

TOXICITY	IRRITATION
Oral (rat) LD50: >90000 mg/kg[2]	Not Available

Legend:	*1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2.* Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances*

SODIUM CHLORIDE	The material may cause skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin.
SODIUM FLUORIDE	The substance is classified by IARC as Group 3: **NOT** classifiable as to its carcinogenicity to humans.
SODIUM SULFATE	for sodium sulfate: Sulfate (and sodium) ions are important constituents of the mammalian body and of natural foodstuffs and there is a considerable daily turnover of both ions (several grams/day expressed as sodium sulfate). Equivocal Tumorigen by RTECS criteria. Reproductive effector in mice.
SODIUM BROMIDE & SODIUM CHLORIDE & SODIUM FLUORIDE & SODIUM NITRATE & AMMONIUM PHOSPHATE, MONOBASIC & SODIUM SULFATE	Asthma-like symptoms may continue for months or even years after exposure to the material ceases.
SODIUM CHLORIDE & SODIUM FLUORIDE	The material may produce moderate eye irritation leading to inflammation.
AMMONIUM PHOSPHATE, MONOBASIC & WATER	No significant acute toxicological data identified in literature search.

Acute Toxicity	⊘	**Carcinogenicity**	✔
Skin Irritation/Corrosion	⊘	**Reproductivity**	⊘
Serious Eye Damage/Irritation	⊘	**STOT - Single Exposure**	⊘
Respiratory or Skin sensitisation	⊘	**STOT - Repeated Exposure**	⊘
Mutagenicity	⊘	**Aspiration Hazard**	⊘

Legend: ✘ *– Data available but does not fill the criteria for classification*
✔ *– Data required to make classification available*
⊘ *– Data Not Available to make classification*

SECTION 12 ECOLOGICAL INFORMATION

Toxicity

Ingredient	Endpoint	Test Duration (hr)	Species	Value	Source

Continued...

sodium bromide	LC50	96	Fish	0.19mg/L	4
sodium 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
Legend:	*Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 3. EPIWIN Suite V3.12 - Aquatic Toxicity Data (Estimated) 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - 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.
DO NOT discharge into sewer or waterways.

Persistence and degradability

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	HIGH	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)

Continued...

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. ▸ **DO NOT** allow wash water from cleaning or process equipment to enter drains. ▸ 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
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

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

US EPCRA Section 313 Chemical List
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

Continued...

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	Y
Canada - DSL	Y
Canada - NDSL	N (sodium bromide; ammonium phosphate, monobasic; water; sodium fluoride; sodium sulfate; sodium nitrate; sodium chloride)
China - IECSC	Y
Europe - EINEC / ELINCS / NLP	Y
Japan - ENCS	N (water)
Korea - KECI	Y
New Zealand - NZIoC	Y
Philippines - PICCS	Y
USA - TSCA	Y
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 Chemwatch 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

Continued...

end of SDS