

Safety Data Sheet

acc. to OSHA HCS

Printing date 09/17/2015

Reviewed on 09/17/2015

1 Identification

- **Product identifier**
- **Trade name:** Isatin/Chloroform/Benzene
Prepared to ASTM D1865-86
- **Article number:** AM135S4
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Aqua Solutions, Inc.
6913 Highway 225
DEER PARK, TX 77536
USA
800-256-2586
- **Information department:**
Product safety department
Technical Coordinator
Sherman Nelson sherman@aquasolutions.org
- **Emergency telephone number:**
Chemtrec: 800-424-9300
Canutec: 613-996-6666



2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS02 Flame

Flam. Liq. 2 H225 Highly flammable liquid and vapor.



GHS06 Skull and crossbones

Acute Tox. 3 H311 Toxic in contact with skin.



GHS08 Health hazard

Muta. 1B H340 May cause genetic defects.

Carc. 1A H350 May cause cancer.

Repr. 2 H361 Suspected of damaging fertility or the unborn child.

STOT RE 1 H372 Causes damage to organs through prolonged or repeated exposure.

Asp. Tox. 1 H304 May be fatal if swallowed and enters airways.



GHS07

Acute Tox. 4 H302 Harmful if swallowed.

Skin Irrit. 2 H315 Causes skin irritation.

Eye Irrit. 2A H319 Causes serious eye irritation.

- **Label elements**
- **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).

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· **Hazard pictograms**



GHS02 GHS06 GHS07 GHS08

· **Signal word** *Danger*

· **Hazard-determining components of labeling:**

Chloroform

benzene

Isatin, 2,3-Indolinedione

· **Hazard statements**

Highly flammable liquid and vapor.

Harmful if swallowed.

Toxic in contact with skin.

Causes skin irritation.

Causes serious eye irritation.

May cause genetic defects.

May cause cancer.

Suspected of damaging fertility or the unborn child.

Causes damage to organs through prolonged or repeated exposure.

May be fatal if swallowed and enters airways.

· **Precautionary statements**

Keep away from heat/sparks/open flames/hot surfaces. No smoking.

Use explosion-proof electrical/ventilating/lighting/equipment.

Do not breathe dust/fume/gas/mist/vapors/spray.

Wear protective gloves / eye protection / face protection.

Wear protective gloves / protective clothing.

Ground/bond container and receiving equipment.

Keep container tightly closed.

Use only non-sparking tools.

Take precautionary measures against static discharge.

Wash thoroughly after handling.

Do not eat, drink or smoke when using this product.

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

IF SWALLOWED: Immediately call a POISON CENTER/ doctor.

If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continue rinsing.

Specific treatment (see on this label).

IF exposed or concerned: Get medical advice/attention.

If skin irritation occurs: Get medical advice/attention.

If eye irritation persists: Get medical advice/attention.

Get medical advice/attention if you feel unwell.

Rinse mouth.

Do NOT induce vomiting.

In case of fire: Use for extinction: CO2, powder or water spray.

Take off immediately all contaminated clothing and wash it before reuse.

Store locked up.

Store in a well-ventilated place. Keep cool.

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

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- **Classification system:**
- **NFPA ratings (scale 0 - 4)**



- **HMIS-ratings (scale 0 - 4)**

HEALTH	3	Health = *3
FIRE	3	Fire = 3
REACTIVITY	0	Reactivity = 0

- **Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

3 Composition/information on ingredients

- **Chemical characterization: Mixtures**
- **Description:** Mixture of the substances listed below with nonhazardous additions.

- **Dangerous components:**

CAS: 67-66-3	Chloroform	87.119%
CAS: 71-43-2	benzene	12.734%

- **Table of Nonhazardous Ingredients**

CAS: 91-56-5	Isatin, 2,3-Indolinedione	0.147%
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4 First-aid measures

- **Description of first aid measures**
- **General information:**
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
- **After inhalation:**
Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist. In case of unconsciousness place patient stably in side position for transportation.
- **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
- **After eye contact:**
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- **After swallowing:** Immediately call a doctor.
- **Information for doctor:**
- **Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:** CO₂, sand, extinguishing powder. Do not use water.

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- **For safety reasons unsuitable extinguishing agents:** Water with full jet
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **Advice for firefighters**
- **Protective equipment:** Mouth respiratory protective device.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
- **Environmental precautions:**
Do not allow product to reach sewage system or any water course.
Inform respective authorities in case of seepage into water course or sewage system.
Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
Do not flush with water or aqueous cleansing agents
- **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

- **Handling:**
- **Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.
Open and handle receptacle with care.
Prevent formation of aerosols.
- **Information about protection against explosions and fires:**
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.
Keep respiratory protective device available.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** Store in a cool location.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:**
Keep receptacle tightly sealed.
Store in cool, dry conditions in well sealed receptacles.
- **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see item 7.

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· **Control parameters**

· **Components with limit values that require monitoring at the workplace:**

CAS: 67-66-3 Chloroform

PEL Ceiling limit value: 240 mg/m³, 50 ppm

REL Short-term value: 9.78* mg/m³, 2* ppm
 *60-min; See Pocket Guide App. A

TLV Long-term value: 49 mg/m³, 10 ppm

CAS: 71-43-2 benzene

PEL Short-term value: 15* mg/m³, 5* ppm
 Long-term value: 3* mg/m³, 1* ppm
 *table Z-2 for exclusions in 29CFR1910.1028(d)

REL Short-term value: 1 ppm
 Long-term value: 0.1 ppm
 See Pocket Guide App. A

TLV Short-term value: 8 mg/m³, 2.5 ppm
 Long-term value: 1.6 mg/m³, 0.5 ppm
 Skin; BEI

· **Ingredients with biological limit values:**

CAS: 71-43-2 benzene

BEI 25 µg/g creatinine
 LD50 Intraperitoneal: urine
 Time: end of shift Parameter
 LD50: S-Phenylmercapturic acid (background)

500 µg/g creatinine
 LD50 Intraperitoneal: urine
 Time: end of shift
 LD50: t,t-Muconic acid (background)

· **Additional information:** The lists that were valid during the creation were used as basis.

· **Exposure controls**

· **Personal protective equipment:**

· **General protective and hygienic measures:**

Keep away from foodstuffs, beverages and feed.
 Immediately remove all soiled and contaminated clothing.
 Wash hands before breaks and at the end of work.
 Store protective clothing separately.
 Avoid contact with the eyes and skin.

· **Breathing equipment:**

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

· **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
 Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

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Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

· **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· **Eye protection:**



Tightly sealed goggles

9 Physical and chemical properties

· **Information on basic physical and chemical properties**

· **General Information**

· **Appearance:**

Form:	Liquid
Color:	Orange
Odor:	Chloroform-benzene
Odour threshold:	Not determined.

· **pH-value:** Not determined.

· **Change in condition**

Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	61 °C (142 °F)

· **Flash point:** -11 °C (12 °F)

· **Flammability (solid, gaseous):** Not applicable.

· **Ignition temperature:** 555 °C (1031 °F)

· **Decomposition temperature:** Not determined.

· **Auto igniting:** Product is not selfigniting.

· **Danger of explosion:** Product is not explosive. However, formation of explosive air/vapor mixtures are possible.

· **Explosion limits:**

Lower:	1.2 Vol %
Upper:	8.0 Vol %

· **Vapor pressure at 20 °C (68 °F):** 210 hPa (158 mm Hg)

· **Density at 20 °C (68 °F):** 1.35896 g/cm³ (11.341 lbs/gal)

· **Relative density** Not determined.

· **Vapour density** Not determined.

· **Evaporation rate** Not determined.

· **Solubility in / Miscibility with**

Water: Not miscible or difficult to mix.

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- | | |
|---|--|
| · Partition coefficient (n-octanol/water): | Not determined. |
| · Viscosity: | |
| Dynamic: | Not determined. |
| Kinematic: | Not determined. |
| · Solvent content: | |
| Organic solvents: | 12.7 % |
| VOC content: | 12.7 % |
| | 173.1 g/l / 1.44 lb/gal |
| · Solids content: | 0.1 % |
| · Other information | No further relevant information available. |

10 Stability and reactivity

- **Reactivity** No further relevant information available.
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**

· LD/LC50 values that are relevant for classification:

Oral	LD50	561 mg/kg
Dermal	LD50	377 mg/kg (mouse)

CAS: 67-66-3 Chloroform

Oral	LD50	500 mg/kg (ATE)
Dermal	LD50	>20000 mg/kg (rabbit)
Inhalative	LC50/4 h	47702 mg/l (rat)
Irritation of skin	Skin Corrosion/Irritation	mild (rabbit)
Irritation of eyes	Eye damage/eye irritation	irritating (rabbit)

CAS: 71-43-2 benzene

Oral	LD50	4894 mg/kg (rat)
Dermal	LD50	48 mg/kg (mouse)
Inhalative	LC50/4 h	9980 mg/l (mouse)

- **Primary irritant effect:**
- **on the skin:** Irritant to skin and mucous membranes.
- **on the eye:** Irritating effect.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**
 The product shows the following dangers according to internally approved calculation methods for preparations:

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Harmful
 Irritant
 Carcinogenic.
 The product can cause inheritable damage.

· **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**

CAS: 67-66-3	Chloroform	2B
CAS: 71-43-2	benzene	I

· **NTP (National Toxicology Program)**

CAS: 67-66-3	Chloroform	R
CAS: 71-43-2	benzene	K

· **OSHA-Ca (Occupational Safety & Health Administration)**

CAS: 71-43-2	benzene	
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12 Ecological information

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.
- **Behavior in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**
 Water hazard class 3 (Self-assessment): extremely hazardous for water
 Do not allow product to reach ground water, water course or sewage system, even in small quantities.
 Danger to drinking water if even extremely small quantities leak into the ground.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**
 Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

· UN-Number	
· DOT, IMDG, IATA	UN1993
· UN proper shipping name	
· DOT	Flammable liquids, n.o.s. (Benzene, Chloroform)

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· **IMDG, IATA** *FLAMMABLE LIQUID, N.O.S. (BENZENE, CHLOROFORM)*

· **Transport hazard class(es)**· **DOT**· **Class** *3 Flammable liquids*· **Label** *3*· **IMDG, IATA**· **Class** *3 Flammable liquids*· **Label** *3*· **Packing group**· **DOT, IMDG, IATA** *II*· **Environmental hazards:** *Not applicable.*· **Special precautions for user** *Warning: Flammable liquids*· **Danger code (Kemler):** *336*· **EMS Number:** *F-E,S-E*· **Segregation groups** *Liquid halogenated hydrocarbons*· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code** *Not applicable.*· **Transport/Additional information:**· **DOT**· **Quantity limitations** *On passenger aircraft/rail: 1 L**On cargo aircraft only: 60 L*· **IMDG**· **Limited quantities (LQ)** *1L*· **Excepted quantities (EQ)** *Code: E2**Maximum net quantity per inner packaging: 30 ml**Maximum net quantity per outer packaging: 500 ml*· **UN "Model Regulation":** *UN 1993 FLAMMABLE LIQUIDS, N.O.S. (BENZENE, CHLOROFORM), 3, II*

15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**· **Sara**· **Section 355 (extremely hazardous substances):**

CAS: 67-66-3 | Chloroform

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· **Section 313 (Specific toxic chemical listings):**

CAS: 67-66-3 Chloroform

CAS: 71-43-2 benzene

· **TSCA (Toxic Substances Control Act):**

All ingredients are listed.

· **Proposition 65**

· **Chemicals known to cause cancer:**

CAS: 67-66-3 Chloroform

CAS: 71-43-2 benzene

· **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**

CAS: 71-43-2 benzene

· **Chemicals known to cause developmental toxicity:**

CAS: 67-66-3 Chloroform

CAS: 71-43-2 benzene

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**

CAS: 67-66-3 Chloroform

B2, L, NL

CAS: 71-43-2 benzene

A, K/L

· **TLV (Threshold Limit Value established by ACGIH)**

CAS: 67-66-3 Chloroform

A3

CAS: 71-43-2 benzene

A1

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

CAS: 67-66-3 Chloroform

CAS: 71-43-2 benzene

· **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).

· **Hazard pictograms**



GHS02

GHS06

GHS07

GHS08

· **Signal word** Danger

· **Hazard-determining components of labeling:**

Chloroform

benzene

Isatin, 2,3-Indolinedione

· **Hazard statements**

Highly flammable liquid and vapor.

Harmful if swallowed.

Toxic in contact with skin.

Causes skin irritation.

Causes serious eye irritation.

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US

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*May cause genetic defects.**May cause cancer.**Suspected of damaging fertility or the unborn child.**Causes damage to organs through prolonged or repeated exposure.**May be fatal if swallowed and enters airways.***· Precautionary statements***Keep away from heat/sparks/open flames/hot surfaces. No smoking.**Use explosion-proof electrical/ventilating/lighting/equipment.**Do not breathe dust/fume/gas/mist/vapors/spray.**Wear protective gloves / eye protection / face protection.**Wear protective gloves / protective clothing.**Ground/bond container and receiving equipment.**Keep container tightly closed.**Use only non-sparking tools.**Take precautionary measures against static discharge.**Wash thoroughly after handling.**Do not eat, drink or smoke when using this product.**Obtain special instructions before use.**Do not handle until all safety precautions have been read and understood.**IF SWALLOWED: Immediately call a POISON CENTER/ doctor.**If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.**If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.**Specific treatment (see on this label).**IF exposed or concerned: Get medical advice/attention.**If skin irritation occurs: Get medical advice/attention.**If eye irritation persists: Get medical advice/attention.**Get medical advice/attention if you feel unwell.**Rinse mouth.**Do NOT induce vomiting.**In case of fire: Use for extinction: CO2, powder or water spray.**Take off immediately all contaminated clothing and wash it before reuse.**Store locked up.**Store in a well-ventilated place. Keep cool.**Dispose of contents/container in accordance with local/regional/national/international regulations.***· National regulations:****· Information about limitation of use:***Workers are not allowed to be exposed to the hazardous carcinogenic materials contained in this preparation.**Exceptions can be made by the authorities in certain cases.***· Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

*This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.***· Department issuing SDS:** Environment protection department.**· Date of preparation / last revision***Revision 0.0, 09-17-2015, creation date for SDS. STN**09/17/2015 / -***· Abbreviations and acronyms:***ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)*

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IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
ACGIH: American Conference of Governmental Industrial Hygienists
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
VOC: Volatile Organic Compounds (USA, EU)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
Flam. Liq. 2: Flammable liquids, Hazard Category 2
Acute Tox. 4: Acute toxicity, Hazard Category 4
Acute Tox. 3: Acute toxicity, Hazard Category 3
Skin Irrit. 2: Skin corrosion/irritation, Hazard Category 2
Eye Irrit. 2A: Serious eye damage/eye irritation, Hazard Category 2A
Muta. 1B: Germ cell mutagenicity, Hazard Category 1B
Carc. 1A: Carcinogenicity, Hazard Category 1A
Repr. 2: Reproductive toxicity, Hazard Category 2
STOT RE 1: Specific target organ toxicity - Repeated exposure, Hazard Category 1
Asp. Tox. 1: Aspiration hazard, Hazard Category 1

US