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## SECTION 1: Identification

### 1.1 GHS Product identifier

Product name Isobenzan

### 1.2 Other means of identification

Product number -

Other names (1ĭž,3ĭž,3aĭž,4ĭž,7ĭž,7aĭž)-1,3,4,5,6,7,8-octachloro-1,3,3a,4,7,7a-hexahydro-4,7-methano-2-benzofuran; Bas-4402; ISOBENZAN

### 1.3 Recommended use of the chemical and restrictions on use

Identified uses Industrial and scientific research uses.

Uses advised against no data available

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## SECTION 2: Hazard identification

### 2.1 Classification of the substance or mixture

Acute toxicity - Category 2, Oral

Acute toxicity - Category 1, Dermal

Hazardous to the aquatic environment, short-term (Acute) - Category Acute 1

### 2.2 GHS label elements, including precautionary statements

Pictogram(s)



Signal word Danger

Hazard statement(s)  
H300 Fatal if swallowed  
H310 Fatal in contact with skin  
H400 Very toxic to aquatic life

Precautionary statement(s)

Prevention

P264 Wash ... thoroughly after handling.  
P270 Do not eat, drink or smoke when using this product.  
P262 Do not get in eyes, on skin, or on clothing.  
P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...  
P273 Avoid release to the environment.  
P301+P316 IF SWALLOWED: Get emergency medical help immediately.  
P321 Specific treatment (see ... on this label).  
P330 Rinse mouth.  
P302+P352 IF ON SKIN: Wash with plenty of water/...  
P316 Get emergency medical help immediately.  
P361+P364 Take off immediately all contaminated clothing and wash it before reuse.  
P391 Collect spillage.

Response

Storage

Disposal

P405 Store locked up.  
P501 Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

### 2.3 Other hazards which do not result in classification

no data available

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## SECTION 3: Composition/information on ingredients

### 3.1 Substances

| Chemical name | Common names and synonyms | CAS number | EC number | Concentration |
|---------------|---------------------------|------------|-----------|---------------|
| Isobenzan     | Isobenzan                 | 297-78-9   | 206-045-4 | 100%          |

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## SECTION 4: First-aid measures

### 4.1 Description of necessary first-aid measures

If inhaled

Move the victim into fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration and consult a doctor immediately. Do not use mouth to mouth resuscitation if the victim ingested or inhaled the chemical.

Following skin contact

Take off contaminated clothing immediately. Wash off with soap and plenty of water. Consult a doctor.

#### **Following eye contact**

Rinse with pure water for at least 15 minutes. Consult a doctor.

#### **Following ingestion**

Rinse mouth with water. Do not induce vomiting. Never give anything by mouth to an unconscious person. Call a doctor or Poison Control Center immediately.

### **4.2 Most important symptoms/effects, acute and delayed**

This material is highly toxic. It is absorbed by the skin as well as by the respiratory and gastrointestinal tract. Symptoms may last for a long time because the material is eliminated slowly; its half-life in human blood is 2.77 years. (EPA, 1998)

### **4.3 Indication of immediate medical attention and special treatment needed, if necessary**

#### **Absorption, Distribution and Excretion**

Isobenzan is absorbed by the skin as well as by the respiratory and GI tracts. ... Following iv injection, 13 and 16% of radioactive isobenzan was excreted in 48 hr by male and female rats, respectively, in the form of a hydrophilic metabolite.

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## **SECTION 5: Fire-fighting measures**

### **5.1 Suitable extinguishing media**

Non-Specific -- Dry Insecticide) Avoid breathing dusts and fumes from burning material. Keep upwind. Avoid bodily contact with the material. Wear full protective clothing including boots, protective gloves, goggles, and wear self-contained breathing apparatus. (Non-Specific -- Dry Insecticide) Use agent suitable for type of surrounding fire. Use water in flooding quantities as fog. Use alcohol foam, carbon dioxide, or dry chemical. (EPA, 1998)

### **5.2 Specific hazards arising from the chemical**

Chlorine is evolved when this material is heated above 410F. Avoid acids, certain metal salts, and catalytically active carriers. (EPA, 1998)

### **5.3 Special protective actions for fire-fighters**

Wear self-contained breathing apparatus for firefighting if necessary.

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## **SECTION 6: Accidental release measures**

### **6.1 Personal precautions, protective equipment and emergency procedures**

Avoid dust formation. Avoid breathing mist, gas or vapours. Avoid contacting with skin and eye. Use personal protective equipment. Wear chemical impermeable gloves. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

### **6.2 Environmental precautions**

Prevent further spillage or leakage if it is safe to do so. Do not let the chemical enter drains. Discharge into the environment must be avoided.

### **6.3 Methods and materials for containment and cleaning up**

Collect and arrange disposal. Keep the chemical in suitable and closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment. Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.

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## **SECTION 7: Handling and storage**

### **7.1 Precautions for safe handling**

Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

### **7.2 Conditions for safe storage, including any incompatibilities**

Store the container tightly closed in a dry, cool and well-ventilated place. Store apart from foodstuff containers or incompatible materials.

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## **SECTION 8: Exposure controls/personal protection**

### **8.1 Control parameters**

#### **Occupational Exposure limit values**

no data available

#### **Biological limit values**

no data available

### **8.2 Appropriate engineering controls**

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

## 8.3 Individual protection measures, such as personal protective equipment (PPE)

### Eye/face protection

Wear tightly fitting safety goggles with side-shields conforming to EN 166(EU) or NIOSH (US).

### Skin protection

Wear fire/flammable resistant and impervious clothing. Handle with gloves. Gloves must be inspected prior to use. Wash and dry hands. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

### Respiratory protection

If the exposure limits are exceeded, irritation or other symptoms are experienced, use a full-face respirator.

### Thermal hazards

no data available

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## SECTION 9: Physical and chemical properties and safety characteristics

|                                                                 |                                                                                                                                                                                         |
|-----------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Physical state</b>                                           | Crystals. The technical product is a whitish to light-brown crystalline powder with a mild chemical odor. Used as an insecticide. Not registered as a pesticide in the U.S. (EPA, 1998) |
| <b>Colour</b>                                                   | Whitish to light brown powder                                                                                                                                                           |
| <b>Odour</b>                                                    | no data available                                                                                                                                                                       |
| <b>Melting point/freezing point</b>                             | 120-122Â°C                                                                                                                                                                              |
| <b>Boiling point or initial boiling point and boiling range</b> | 421.5Â°C at 760mmHg                                                                                                                                                                     |
| <b>Flammability</b>                                             | no data available                                                                                                                                                                       |
| <b>Lower and upper explosion limit/flammability limit</b>       | no data available                                                                                                                                                                       |
| <b>Flash point</b>                                              | 156.3Â°C                                                                                                                                                                                |
| <b>Auto-ignition temperature</b>                                | no data available                                                                                                                                                                       |
| <b>Decomposition temperature</b>                                | no data available                                                                                                                                                                       |
| <b>pH</b>                                                       | no data available                                                                                                                                                                       |
| <b>Kinematic viscosity</b>                                      | no data available                                                                                                                                                                       |
| <b>Solubility</b>                                               | Sol in ether, acetone, benzene, xylene, heavy aromatic naphtha                                                                                                                          |
| <b>Partition coefficient n-octanol/water</b>                    | log Kow = 4.51 /Estimated/                                                                                                                                                              |
| <b>Vapour pressure</b>                                          | 6.37E-07mmHg at 25Â°C                                                                                                                                                                   |
| <b>Density and/or relative density</b>                          | 1.9g/cm3                                                                                                                                                                                |
| <b>Relative vapour density</b>                                  | no data available                                                                                                                                                                       |
| <b>Particle characteristics</b>                                 | no data available                                                                                                                                                                       |

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## SECTION 10: Stability and reactivity

### 10.1 Reactivity

no data available

### 10.2 Chemical stability

Relatively stable to acids; dehydrochlorination may occur under strong alkaline conditions.

### 10.3 Possibility of hazardous reactions

Chlorine is evolved when ISOBENZAN is heated above 410F. Avoid acids, certain metal salts, and catalytically active carriers. [EPA, 1998].

### 10.4 Conditions to avoid

no data available

### 10.5 Incompatible materials

no data available

### 10.6 Hazardous decomposition products

When heated to decomposition it emits toxic fumes of /hydrogen chloride/.

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## SECTION 11: Toxicological information

### Acute toxicity

- Oral: LD50 Rat male (hooded) oral 11.1 mg/kg
- Inhalation: no data available
- Dermal: no data available

### Skin corrosion/irritation

no data available

**Serious eye damage/irritation**

no data available

**Respiratory or skin sensitization**

no data available

**Germ cell mutagenicity**

no data available

**Carcinogenicity**

no data available

**Reproductive toxicity**

no data available

**STOT-single exposure**

no data available

**STOT-repeated exposure**

no data available

**Aspiration hazard**

no data available

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**SECTION 12: Ecological information****12.1 Toxicity**

- Toxicity to fish: no data available
- Toxicity to daphnia and other aquatic invertebrates: no data available
- Toxicity to algae: no data available
- Toxicity to microorganisms: no data available

**12.2 Persistence and degradability**

AEROBIC: Microbial degradation studies found no evidence of biodegradation of isobenzan in soil studies using 250 and 2500 ppm over 30 days(1), however, the method only observed carbon dioxide evolution ignoring the possibility of biological epoxidation. Biodegradation of isobenzan in 4 different soil samples at 45 deg C for 4 days resulted in trace-74% of initial isobenzan concentration detected(2). Another study calculated a soil half-life of 20-26 weeks depending on soil content(3,4).

**12.3 Bioaccumulative potential**

An estimated BCF of 600 was calculated for isobenzan(SRC), using an estimated log Kow of 4.51(1) and a regression-derived equation(2). According to a classification scheme(3), this BCF suggests the potential for bioconcentration in aquatic organisms is high(SRC).

**12.4 Mobility in soil**

Using a structure estimation method based on molecular connectivity indices(1), the Koc for isobenzan can be estimated to be 4,700(SRC). According to a classification scheme(2), this estimated Koc value suggests that isobenzan is expected to have slight mobility in soil.

**12.5 Other adverse effects**

no data available

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**SECTION 13: Disposal considerations****13.1 Disposal methods****Product**

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

**Contaminated packaging**

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

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**SECTION 14: Transport information****14.1 UN Number**

ADR/RID: UN2761 (For reference only, please check.)      IMDG: UN2761 (For reference only, please check.)      IATA: UN2761 (For reference only, please check.)

**14.2 UN Proper Shipping Name**

ADR/RID: ORGANOCHLORINE PESTICIDE, SOLID, TOXIC (For reference only, please check.)  
 IMDG: ORGANOCHLORINE PESTICIDE, SOLID, TOXIC (For reference only, please check.)  
 IATA: ORGANOCHLORINE PESTICIDE, SOLID, TOXIC (For reference only, please check.)

### 14.3 Transport hazard class(es)

ADR/RID: 6.1 (For reference only, please check.)  
 IMDG: 6.1 (For reference only, please check.)  
 IATA: 6.1 (For reference only, please check.)

### 14.4 Packing group, if applicable

ADR/RID: I (For reference only, please check.)  
 IMDG: I (For reference only, please check.)  
 IATA: I (For reference only, please check.)

### 14.5 Environmental hazards

ADR/RID: Yes  
 IMDG: Yes  
 IATA: Yes

### 14.6 Special precautions for user

no data available

### 14.7 Transport in bulk according to IMO instruments

no data available

## SECTION 15: Regulatory information

### 15.1 Safety, health and environmental regulations specific for the product in question

| Chemical name                                                            | Common names and synonyms | CAS number | EC number   |
|--------------------------------------------------------------------------|---------------------------|------------|-------------|
| Isobenzan                                                                | Isobenzan                 | 297-78-9   | 206-045-4   |
| European Inventory of Existing Commercial Chemical Substances (EINECS)   |                           |            | Listed.     |
| EC Inventory                                                             |                           |            | Listed.     |
| United States Toxic Substances Control Act (TSCA) Inventory              |                           |            | Not Listed. |
| China Catalog of Hazardous chemicals 2015                                |                           |            | Listed.     |
| New Zealand Inventory of Chemicals (NZIoC)                               |                           |            | Not Listed. |
| Philippines Inventory of Chemicals and Chemical Substances (PICCS)       |                           |            | Not Listed. |
| Vietnam National Chemical Inventory                                      |                           |            | Listed.     |
| Chinese Chemical Inventory of Existing Chemical Substances (China IECSC) |                           |            | Not Listed. |
| Korea Existing Chemicals List (KECL)                                     |                           |            | Listed.     |

## SECTION 16: Other information

#### Information on revision

Creation Date July 15, 2019  
 Revision Date July 15, 2019

#### Abbreviations and acronyms

- CAS: Chemical Abstracts Service
- ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
- RID: Regulation concerning the International Carriage of Dangerous Goods by Rail
- IMDG: International Maritime Dangerous Goods
- IATA: International Air Transportation Association
- TWA: Time Weighted Average
- STEL: Short term exposure limit
- LC50: Lethal Concentration 50%
- LD50: Lethal Dose 50%
- EC50: Effective Concentration 50%

#### References

- IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>
- HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>
- IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>
- eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: [http://www.echemportal.org/echemportal/index?pageID=0&request\\_locale=en](http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en)
- CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>
- ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>
- ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: <http://www.phmsa.dot.gov/hazmat/library/erg>
- Germany GESTIS-database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>
- ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>