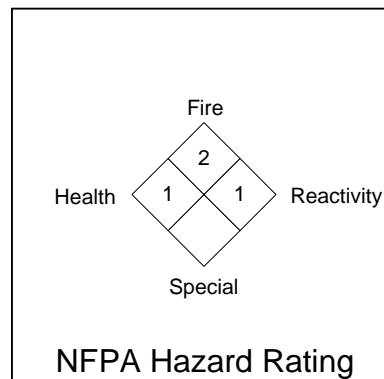


**1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION**

**Product name** Isopropenylbenzene  
[Alpha-Methyl Styrene]

**Effective date** August 2008



**Synonyms** Isopropenyl benzene, 2-phenylpropene, beta-phenylpropene, beta-phenylpropylene, 1-methylethenyl-benzene, 1-methyl-1-phenylethylene, alpha-methylstyrene, AMS

**Chemical formula**  $C_6H_5C(CH_3)CH_2$

**CAS name & no.** Benzene (1-methylethenyl), 98-83-9

**Manufacturer's name and address** Georgia Gulf Chemicals & Vinyls, LLC  
P.O. Box 629  
Plaquemine, LA 70765-0629

**Emergency telephone number** For transportation emergencies:  
CHEMTREC (800) 424-9300  
For all other emergencies: (225) 685-2500

**MSDS contact** Corporate Health & Safety Department  
P.O. Box 629  
Plaquemine, LA 70765-0629  
Phone Number (225) 685-2500

## 2. COMPOSITION/INFORMATION ON INGREDIENTS

| Component  | CAS No. | Wt. %. |
|--|---------|--------|
| Isopropenylbenzene<br>[alpha Methyl-styrene (AMS)] | 98-83-9 | >99    |

## 3. HAZARDS IDENTIFICATION

**Caution: Moderately combustible liquid. Eye, skin and upper respiratory tract irritant. May cause central nervous system effects. Over exposure may cause drowsiness.**

**Primary Routes of Exposure:** Inhalation, ingestion, skin, and eye contact.

**Acute Effects:** Isopropenylbenzene [AMS] is an irritant to the eyes, skin, and upper respiratory tract. Symptoms of exposure to this compound include irritation of eyes, respiratory tract, mouth and stomach, headache, dizziness, lightheadedness, breathlessness, severe skin rashes, swelling and blistering of the skin, nausea, and vomiting. Eye effects include constriction of retinal arteries, rise of ocular tension, decreased light sensitivity and narrowed visual fields. Central nervous system depression and drowsiness may also occur at high levels.

**Chronic Effects:** Prolonged exposure to isopropenylbenzene [AMS] has been reported to interfere with Vitamin B12 metabolism. Chronic exposure to isopropenylbenzene may also produce reversible changes in visual acuity and light sensitivity. Prolonged skin contact may result in dermatitis, and repeated inhalation may cause central nervous system depression.

### Potential Adverse Chemical Interactions

Persons with pre-existing skin diseases, chronic respiratory diseases, especially obstructive airway disease, kidney or liver diseases may be at increased risk due to possible toxic or metabolic effects in these organs. The combination of isopropenylbenzene and butadiene has been shown to produce changes in liver enzymes in humans similar to those in occupational hepatitis and to decrease white blood cell counts in laboratory animals.

### Carcinogen Status

A two-year study titled "Toxicology and Carcinogenesis Studies of  $\alpha$ -Methylstyrene in F344/N Rats and B6C3F1 Mice (Inhalation Studies)" was conducted by the National Toxicology Program. The report indicates that  $\alpha$ -methylstyrene in air caused kidney tumors, and possibly mononuclear cell leukemia, in male rats. The report also indicated that exposure to  $\alpha$ -methylstyrene in air caused increased rates of liver cancers in female mice and slightly increased rates of liver tumors in male mice. Based upon the results of this animal testing,  $\alpha$ -methylstyrene should be handled as a potential carcinogen.

However, this chemical is not currently considered to be carcinogenic by OSHA, NIOSH, NTP, IARC or EPA. Isopropenylbenzene [AMS] is classified as A4 by the ACGIH, which means not classifiable as to human carcinogenicity.

## 4. FIRST AID MEASURES

### Inhalation

If a person breathes large amounts of this chemical, move the individual to fresh air at once. If breathing has stopped, give artificial respiration. Keep the affected person warm and at rest. Get medical attention immediately.

### Skin Contact

If this chemical contacts the skin, thoroughly flush the contaminated skin with soap and water for at least 15 minutes. If this chemical penetrates the clothing, promptly remove the clothing and flush the skin with water. If irritation persists after washing, get medical attention.

### Eye Contact

If the chemical contacts the eyes, immediately wash the eyes with large amounts of room temperature water for at least 15 minutes, occasionally lifting the lower and upper lids. Get medical attention immediately and have the individual examined by an ophthalmologist.

### Ingestion

If the chemical is ingested **do not induce vomiting**. Get medical attention immediately.

## 5. FIRE FIGHTING MEASURES

**Flash Point** 54° C (closed cup)

### Flammable Limits (% By Vol.)

|                             |     |
|-----------------------------|-----|
| Lower Explosive Limit (LEL) | 1.9 |
| Upper Explosive Limit (UEL) | 6.1 |

**Auto-ignition Temperature** 574° C

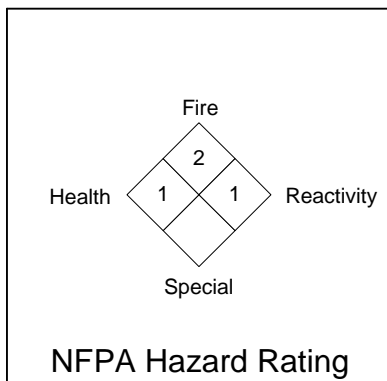
### Fire Fighting Procedures/Fire Extinguishing Media

Keep unnecessary people away; isolate hazard area and deny entry. Avoid breathing vapors, stay upwind and out of low areas. Wear NIOSH approved self-contained respirator in the positive pressure mode and protective clothing. Structural firefighter's protective clothing will provide only limited protection. Use water spray or carbon dioxide extinguishers, or alcohol foam for small fires. Direct streams of water tend to spread isopropenylbenzene fires and, as such, should not be used. Large fires should be extinguished with alcohol foam. Use water spray to cool containers exposed in heat of fire. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire. Isolate for 1/2 mile in all directions if tank car or truck is involved in fire.

### Unusual Fire and Explosion Hazards

Dangerous fire and explosion hazard when exposed to heat or flame. Isopropenylbenzene is combustible and forms explosive mixtures with air. Isopropenylbenzene may be ignited by heat, sparks, flame, friction, and static electricity. Isopropenylbenzene vapors may travel considerable distance to source of ignition and flash back. Fire may produce irritating or poisonous gases.

## 5. FIRE FIGHTING MEASURES (continued)



### National Fire Protection Association Hazard Rating

4 = Extreme

3 = High

2 = Moderate

1 = Slight

0 = Insignificant

## 6. ACCIDENTAL RELEASE MEASURES

Shut off all sources of ignition. No smoking or flares allowed in the spill area. Restrict access to spill area and move unprotected personnel upwind of the area. Keep out of low areas. Allow only trained personnel wearing appropriate protective clothing and self-contained breathing apparatus in the vicinity of the spill. Do not touch spilled material; stop leak if you can do so without risk. Prevent isopropenylbenzene from entering water bodies, drains, or any sewage collection system. Isopropenylbenzene will float on water and the runoff will present an explosion or fire hazard. For small spills, take up with sand or other non-combustible absorbent material, and place into containers for later disposal. Control large spills by diking. Dispose all spill material in accordance with federal, state, and local regulations. Isopropenylbenzene spills over the reportable quantity (100 lbs) should be reported to the National Response Center (800-424-8802).

Note: Isopropenylbenzene is not listed in 40 CFR 302.4, but exhibits characteristics of ignitability in accordance with 40 CFR 261.21. According to 40 CFR 302.4, unlisted hazardous wastes meeting the requirements of 40 CFR 261.21 have a reportable quantity of 100 lbs.

## 7. HANDLING AND STORAGE

### Storage

Store isopropenylbenzene in a cool dry place in accordance with 29 CFR 1910.106 and away from heat and sources of ignition. Store in an area equipped with automatic sprinklers or fire extinguishing system. Store away from aluminum, iron oxide, and oxidizing materials including hydrogen peroxide and halogens. Ground and bond metal storage containers and transfer lines to prevent possible ignition from static sparks. Use spark resistant equipment to store isopropenylbenzene. Containers of this material may be hazardous when emptied. Since emptied containers retain product residues, assume emptied containers to have the same hazards as full containers. Follow all federal, state, and local regulations as well as all insurance codes when storing and handling isopropenylbenzene.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

All personal protective equipment should be selected in accordance with the hazard assessment required by 29 CFR 1910.132 (d).

### **Respiratory Protection**

Use appropriate NIOSH approved respirator in accordance with 29 CFR 1910.134, to prevent overexposure. Respirators must be selected based on airborne levels found in the workplace and must not exceed the working limits of the respirator.

### **Eye Protection**

Use splash proof chemical safety goggles or appropriate full-face respirator. Follow the eye and face protection guidelines of 29 CFR 1910.133. Where there is any possibility that the individual's eyes may be exposed to isopropenylbenzene, an eye wash fountain (in accordance with 29 CFR 1910.151) should be within the immediate work area for emergency use.

### **Skin Protection**

Chemical protective clothing and gloves must be used in accordance with 29 CFR 1910.132 and 29 CFR 1910.138.

### **Ventilation**

Provide general and/or local ventilation to control airborne levels below exposure guidelines. Local exhaust ventilation should comply with OSHA regulations and the American Conference of Industrial Hygienists, Industrial Ventilation- A Manual of Recommended Practice.

### **Occupational Exposure Guidelines for Alpha-Methyl Styrene**

|              |                       |                |
|--------------|-----------------------|----------------|
| <b>OSHA</b>  | <b>PEL (Ceiling)</b>  | <b>100 ppm</b> |
| <b>ACGIH</b> | <b>TLV-TWA</b>        | <b>50 ppm</b>  |
|              | <b>TLV-STEL</b>       | <b>100 ppm</b> |
| <b>NIOSH</b> | <b>REL (10hr TWA)</b> | <b>50 ppm</b>  |
|              | <b>STEL</b>           | <b>100 ppm</b> |
|              | <b>IDLH</b>           | <b>700 ppm</b> |

### **Other**

Where there is a possibility of exposure of an individual's body to isopropenylbenzene, facilities for quick drenching of the body should be provided (in accordance with 29 CFR 1910.151) within the immediate work area for emergency use. Such individuals should be provided with and required to use impervious clothing in accordance with 29 CFR 1910.132.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

|                                       |                                   |
|---------------------------------------|-----------------------------------|
| <b>Appearance</b>                     | Colorless liquid                  |
| <b>Odor</b>                           | Pungent                           |
| <b>Molecular Weight</b>               | 118.2                             |
| <b>Boiling Point</b>                  | 165 °C                            |
| <b>Melting Point</b>                  | -22.78 °C                         |
| <b>Solubility</b>                     | Slightly soluble in water (0.04%) |
| <b>Specific Gravity (Water = 1.0)</b> | 0.92 at 15.6 °C                   |
| <b>Vapor Density (Air = 1.0)</b>      | 4.1 at 60 °C                      |
| <b>Vapor Pressure</b>                 | 1.9 mm Hg at 20 °C                |
| <b>pH</b>                             | 7.0                               |

## 10. STABILITY AND REACTIVITY

### Stability

Unstable.

### Polymerization

Hazardous polymerization may occur; exhibits little tendency to polymerize thermally at temperatures up to 200° C; strong acids (e.g. concentrated H<sub>2</sub>SO<sub>4</sub>) can cause polymerization at room temperature.

### Hazardous Decomposition Products

Heat and combustion produces carbon monoxide, carbon dioxide, aldehydes, ketones, and organic acids.

### Incompatible Materials

Oxidizing materials, copper, copper alloys, and acids.

## 11. TOXICOLOGICAL INFORMATION

### Animal Toxicity

|                    |                        |                          |
|--------------------|------------------------|--------------------------|
| <b>Oral:</b>       | Rat LD <sub>50</sub>   | 4.9 g/kg                 |
| <b>Inhalation:</b> | Rat LC <sub>LO</sub>   | 3000 ppm                 |
|                    | Human LC <sub>LO</sub> | 600 ppm (eye irritation) |

LC<sub>LO</sub> = Lowest air concentration that is lethal to a given species in a given time.

LD<sub>50</sub> = Dose that is lethal to 50% of a given species by a given route of exposure.

## 12. ECOLOGICAL INFORMATION

**Environmental Fate:** The following information on isopropenylbenzene (alpha methyl benzene) is extracted from the TOXNET database maintained by the National Library of Medicine.

**Atmosphere:** If released to air, a vapor pressure of 1.9 mm Hg at 25 deg C indicates isopropenylbenzene will exist solely as a vapor in the ambient atmosphere. Vapor-phase isopropenylbenzene will be degraded in the atmosphere by reaction with photochemically-produced hydroxyl radicals and ozone; the half-life for these reactions in air are estimated to be 7 and 2 hrs, respectively. Isopropenylbenzene absorbs light in the environmental UV spectrum and has the potential for direct photolysis.

**Terrestrial:** If released to soil, isopropenylbenzene is expected to have low mobility based upon an estimated Koc of 1,900. Volatilization from moist surfaces is expected to be an important fate process based upon an estimated Henry's Law constant of  $2.6 \times 10^{-3}$  atm-cu m/mole. Isopropenylbenzene may volatilize from dry soil surfaces based upon its vapor pressure.

**Aquatic:** If released into water, isopropenylbenzene is expected to adsorb to suspended solids and sediment based upon the estimated Koc. A 0% theoretical BOD obtained using the Japanese MITI test indicates that this compound is not expected to biodegrade. Volatilization from water surfaces is expected to be an important fate process based upon this compound's estimated Henry's Law constant. Estimated volatilization half-lives for a model river and model lake are 4 hrs and 4 days, respectively.

**Biodegradation:** Isopropenylbenzene, present at 100 mg/l, reached 0% of its theoretical BOD in 2 weeks using an activated sludge inoculum at 30 mg/l and the Japanese MITI test. Therefore this compound is not expected to biodegrade. However, several microorganisms are able to grow using isopropenylbenzene as a carbon source.

**Ecotoxicity:** Not available

## 13. DISPOSAL CONSIDERATIONS

**Waste Management Information:** Do not dump into any sewers, on the ground, or into any body of water. Any disposal practice must be in compliance with local, state and federal laws and regulations (contact local or state environmental agency for specific rules). Waste characterization and compliance with applicable laws are the responsibility of the waste generator.

## 14. TRANSPORTATION INFORMATION

|                             |  |
|-----------------------------|--|
| <b>Proper shipping name</b> | Isopropenylbenzene, (Marine Pollutant) |
| <b>DOT Hazard Class</b>     | 3, (Flammable liquid)                  |
| <b>DOT Shipping ID No.</b>  | UN 2303                                |
| <b>PG</b>                   | III                                    |
| <b>Labeling</b>             | Flammable liquid                       |

**15. REGULATORY INFORMATION**

Regulatory information is not meant to be all-inclusive. It is the user's responsibility to ensure compliance with federal, state or provincial and local laws.

**SARA Title III****Section 302 and 304 of the Act; Extremely Hazardous Substances (40 CFR 355)**

| <u>COMPONENT</u> | <u>CAS No.</u> | <u>TPQ (lbs)</u> | <u>RQ</u>      |
|------------------|----------------|------------------|----------------|
| None             | Applicable     | Not Applicable   | Not Applicable |

NOTE: TPQ - Threshold Planning Quantity                      RQ - Reportable Quantity

**Section 311 Hazard Categorization (40 CFR 370)**

| <u>ACUTE</u> | <u>CHRONIC</u> | <u>FIRE</u> | <u>PRESSURE</u> | <u>REACTIVE</u> |
|--------------|----------------|-------------|-----------------|-----------------|
| X            | X              | X           |                 | X               |

**Section 313 Toxic Chemicals (40 CFR 372.65)**

| <u>COMPONENT</u> | <u>CAS No.</u> | <u>WT. %</u>   |
|------------------|----------------|----------------|
| None             | Not Applicable | Not Applicable |

**CERCLA****Section 102(a) Hazardous Substances (40 CFR 302.4)**

| <u>COMPONENT</u> | <u>CAS No.</u> | <u>WT. %</u>   | <u>RQ (lbs)</u> |
|------------------|----------------|----------------|-----------------|
| Not listed       | Not Applicable | Not Applicable | Not Applicable  |

Note: Isopropenylbenzene is not listed in 40 CFR 302.4, but exhibits characteristics of ignitability in accordance with 40 CFR.261.21. According to 40 CFR 302.4, unlisted hazardous wastes meeting the requirements of 40 CFR 261.21 have a reportable quantity of 100 lbs.

**RCRA**

Solid waste containing isopropenylbenzene may be regulated as a hazardous waste exhibiting the ignitability characteristic (D001).

**TSCA**

Isopropenylbenzene is listed on the TSCA inventory.

**Proposition 65**

Isopropenylbenzene (alpha-methylstyrene) is not listed on the California Proposition 65 list.

**Canadian Regulations**

This product has been classified according to the hazard criteria of the Canadian Controlled Products Regulations, Section 33 and the MSDS contains all information required by this regulation.

WHMIS Classification- Class B, Division 3- Combustible Liquids

WHMIS Ingredient Disclosure List

Alpha-methylstyrene                      CAS 98-83-9                      Cutoff- 1%

**Canadian Environmental Protection Act (CEPA)**

All substances in this product are listed on the Canadian Domestic Substances (DSL) list or are not required to be listed.

## 16. OTHER INFORMATION

**IMPORTANT:** The information and data herein are believed to be accurate and have been compiled from sources believed to be reliable. It is offered for your consideration, investigation and verification. Buyer assumes all risk of use, storage and handling of the product in compliance with applicable federal, state and local laws and regulations. **GEORGIA GULF CHEMICALS AND VINYLs, LLC MAKES NO WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, CONCERNING THE ACCURACY OR COMPLETENESS OF THE INFORMATION AND DATA HEREIN.** Georgia Gulf will not be liable for claims relating to any party's use of or reliance on information and data contained herein regardless of whether it is claimed that the information and data are inaccurate, incomplete or otherwise misleading. This information relates to the material designated and may not be valid for such material used in combination with any other materials nor in any process.

MSDS Status: Revision Date 8/25/2008

Supersedes 8/30/2007