

SAFETY DATA SHEET

Cumene



Section 1. Identification

GHS product identifier	: Cumene
Chemical name	: Cumene
Synonyms	: Benzene, (1-methylethyl)-; Cumene-Benzene, (1-methylethyl)-; Isopropylbenzene; Isopropyl benzene; 1-methylethylbenzene; 2-phenylpropane
Code	: 07503
MSDS #	: 07503
Supplier's details	: CITGO Petroleum Corporation P.O. Box 4689 Houston, TX 77210 sdsvend@citgo.com
Emergency telephone number	: Technical Contact: (832) 486-4000 Medical Emergency: (832) 486-4700 CHEMTREC Emergency: (800) 424-9300 (United States Only)

Section 2. Hazards identification

OSHA/HCS status	: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Classification of the substance or mixture	: FLAMMABLE LIQUIDS - Category 3 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2B CARCINOGENICITY: INHALATION - Category 2 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) [Respiratory tract irritation] - Category 3 ASPIRATION HAZARD - Category 1

GHS label elements

Hazard pictograms



Signal word

: Danger

Hazard statements

: Flammable liquid and vapor.
Causes eye irritation.
Suspected of causing cancer if inhaled.
May be fatal if swallowed and enters airways.
May cause respiratory irritation.

Precautionary statements

Prevention

: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use personal protective equipment as required. Wear protective gloves. Wear eye or face protection. Keep away from heat, sparks, open flames and hot surfaces. - No smoking. Use explosion-proof electrical, ventilating, lighting and all material-handling equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Keep container tightly closed. Use only outdoors or in a well-ventilated area. Avoid breathing vapor. Wash hands thoroughly after handling.

Section 2. Hazards identification

Response	: IF exposed or concerned: Get medical attention. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or physician if you feel unwell. IF SWALLOWED: Immediately call a POISON CENTER or physician. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.
Storage	: Store locked up. Store in a well-ventilated place. Keep cool.
Disposal	: Dispose of contents and container in accordance with all local, regional, national and international regulations.
Hazards not otherwise classified	: None known.

Section 3. Composition/information on ingredients

Substance/mixture	: Substance
Chemical name	: Cumene
Other means of identification	: Benzene, (1-methylethyl)-; Cumene-Benzene, (1-methylethyl)-; Isopropylbenzene; Isopropyl benzene; 1-methylethylbenzene; 2-phenylpropane

CAS number/other identifiers

CAS number : 98-82-8

Ingredient name	%	CAS number
Cumene	99 - 100	98-82-8

* = Various ** = Mixture *** = Proprietary

Any concentration shown as a range is to protect confidentiality or is due to process variation.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact	: Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.
Inhalation	: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that gas or vapor is still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
Skin contact	: Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.
Ingestion	: Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. Aspiration hazard if swallowed. Can enter lungs and cause damage. Do not induce vomiting. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute

Potential acute health effects

Section 4. First aid measures

- Eye contact** : May cause eye irritation.
- Inhalation** : May cause respiratory irritation.
- Skin contact** : No known significant effects or critical hazards.
- Ingestion** : May be fatal if swallowed and enters airways. May be irritating to mouth, throat and stomach.

Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following:
irritation
watering
redness
- Inhalation** : Adverse symptoms may include the following:
respiratory tract irritation
coughing
- Skin contact** : No specific data.
- Ingestion** : Adverse symptoms may include the following:
nausea or vomiting

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

- Notes to physician** : If ingested, this material presents a significant aspiration and chemical pneumonitis hazard. Induction of emesis is not recommended. Consider activated charcoal and/or gastric lavage. If patient is obtunded, protect the airway by cuffed endotracheal intubation or by placement of the body in a Trendelenburg and left lateral decubitus position.
- Specific treatments** : Treat symptomatically and supportively.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that gas or vapor is still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

- Specific hazards arising from the chemical** : Flammable liquid and vapor. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. The vapor/gas is heavier than air and will spread along the ground. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. Runoff to sewer may create fire or explosion hazard.

Extinguishing media

- Suitable extinguishing media** : Use dry chemical, CO₂, water spray (fog) or foam.
- Unsuitable extinguishing media** : Do not use water jet.
- Hazardous thermal decomposition products** : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide

- Special protective actions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
- For emergency responders** : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

- Small spill** : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
- Large spill** : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not swallow. Avoid breathing vapor or mist. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not reuse container. Non equilibrium conditions may increase the fire hazard associated with this product. Always bond receiving containers to the fill pipe before and during loading. Always confirm that receiving container is properly grounded. Bonding and grounding alone may be inadequate to eliminate fire and explosion hazards. Carefully review operations that may increase the risks such as tank and container filling, tank cleaning, sampling, gauging, loading, filtering, mixing, agitation, etc. In addition to bonding and grounding, efforts to mitigate the hazards may include, but are not limited to, ventilation, inerting and/or reduction of transfer velocities. Always keep nozzle in contact with the container throughout the loading process. Do NOT fill any portable container in or on a vehicle.
- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Section 7. Handling and storage

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Bulk Storage Conditions: Maintain all storage tanks in accordance with applicable regulations. Use necessary controls to monitor tank inventories. Inspect all storage tanks on a periodic basis. Test tanks and associated piping for tightness. Maintain the automatic leak detection devices to assure proper working condition.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Cumene	ACGIH TLV (United States, 4/2014). TWA: 50 ppm 8 hours. OSHA PEL (United States, 2/2013). Absorbed through skin. TWA: 50 ppm 8 hours. TWA: 245 mg/m ³ 8 hours.

Appropriate engineering controls : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, vapor controls, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety glasses equipped with side shields are recommended as minimum protection in industrial settings. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: Splash goggles. Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. chemical splash goggles. If inhalation hazards exist, a full-face respirator may be required instead.

Skin protection

Hand protection : Chemical-resistant gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Section 8. Exposure controls/personal protection

- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Use a properly fitted, air-purifying or supplied-air respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9. Physical and chemical properties

- Physical state** : Liquid.
- Color** : Colorless.
- Odor** : Characteristic.
- pH** : Not available.
- Melting point** : -96°C (-140.8°F)
- Boiling point/boiling range** : 152°C (305.6°F)
- Flash point** : Closed cup: 36°C (96.8°F) [Pensky-Martens.]
Open cup: 46°C (114.8°F) [Cleveland.]
- Evaporation rate** : 0.43 (butyl acetate = 1)
- Lower and upper explosive (flammable) limits** : Lower: 0.9%
Upper: 6.5%
- Vapor pressure** : 0.43 kPa (3.2 mm Hg) [room temperature]
- Vapor density** : 4.2 [Air = 1]
- Relative density** : 0.9
- Density lbs/gal** : Estimated 7.5 lbs/gal
- Gravity, °API** : Estimated 26 @ 60 F
- Solubility** : Insoluble in the following materials: cold water.
- Auto-ignition temperature** : 420°C (788°F)
- Viscosity** : Dynamic (room temperature): 0.6 mPa·s (0.6 cP)
Kinematic (room temperature): 0.007 cm²/s (0.7 cSt)

Section 10. Stability and reactivity

- Reactivity** : Not expected to be Explosive, Self-Reactive, Self-Heating, or an Organic Peroxide under US GHS Definition(s).
- Chemical stability** : The product is stable.
- Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.
- Conditions to avoid** : Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow vapor to accumulate in low or confined areas.
- Incompatible materials** : Reactive or incompatible with the following materials:
oxidizing materials
- Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Cumene	LC50 Inhalation Vapor	Mouse	10 g/m ³	7 hours
	LD50 Dermal	Rabbit	12300 uL/kg	-
	LD50 Oral	Rat	2.9 g/kg	-
	LD50 Oral	Rat	4000 mg/kg	-

Conclusion/Summary : **Cumene**: Overexposure to cumene may cause upper respiratory tract irritation and CNS depression.

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Cumene	Eyes - Mild irritant	Rabbit	-	86 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 10 milligrams	-

Skin : No additional information.

Eyes : No additional information.

Respiratory : No additional information.

Sensitization

Skin : No additional information.

Respiratory : No additional information.

Mutagenicity

Conclusion/Summary : No additional information.

Carcinogenicity

Conclusion/Summary : **Cumene**: Studies in laboratory animals indicate evidence of adverse effects on the kidney and adrenal glands following high level exposure. The relevance of these findings to humans is not clear at this time. IARC has classified cumene as "possibly carcinogenic to humans" (Group 2B). In addition, NTP has determined cumene is reasonably anticipated to be a human carcinogen based on sufficient evidence of carcinogenicity from studies in experimental animals.

Classification

Product/ingredient name	OSHA	IARC	NTP
Cumene	-	2B	Reasonably anticipated to be a human carcinogen.

Reproductive toxicity

Conclusion/Summary : No additional information.

Teratogenicity

Conclusion/Summary : No additional information.

Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
Cumene	Category 3	Not applicable.	Respiratory tract irritation

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Name	Result
Cumene	ASPIRATION HAZARD - Category 1

Section 11. Toxicological information

Information on the likely routes of exposure : Routes of entry anticipated: Oral, Dermal, Inhalation.

Potential acute health effects

- Eye contact** : May cause eye irritation.
- Inhalation** : May cause respiratory irritation.
- Skin contact** : No known significant effects or critical hazards.
- Ingestion** : May be fatal if swallowed and enters airways. May be irritating to mouth, throat and stomach.

Symptoms related to the physical, chemical and toxicological characteristics

- Eye contact** : Adverse symptoms may include the following:
irritation
watering
redness
- Inhalation** : Adverse symptoms may include the following:
respiratory tract irritation
coughing
- Skin contact** : No specific data.
- Ingestion** : Adverse symptoms may include the following:
nausea or vomiting

Potential chronic health effects

- General** : No known significant effects or critical hazards.
- Carcinogenicity** : Suspected of causing cancer if inhaled. Risk of cancer depends on duration and level of exposure.
- Mutagenicity** : No known significant effects or critical hazards.
- Teratogenicity** : No known significant effects or critical hazards.
- Developmental effects** : No known significant effects or critical hazards.
- Fertility effects** : No known significant effects or critical hazards.

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
Cumene	Acute EC50 2600 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	72 hours
	Acute EC50 7400 µg/l Fresh water	Crustaceans - Artemia sp. - Nauplii	48 hours
	Acute EC50 10600 µg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute LC50 2700 µg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours

Conclusion/Summary : Not available.

Persistence and degradability

Conclusion/Summary : Not available.

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
Cumene	3.55	94.69	low

Section 12. Ecological information

Mobility in soil

Soil/water partition coefficient (K_{oc}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

RCRA classification : D001, D018

United States - RCRA Toxic hazardous waste "U" List

Ingredient	CAS #	Status	Reference number
Cumene	98-82-8	Listed	U055

Section 14. Transport information

	DOT Classification	IMDG	IATA
UN number	UN 1918	UN1918	UN1918
UN proper shipping name	Isopropylbenzene	Isopropylbenzene	Isopropylbenzene
Transport hazard class(es)	3 	3  	3 
Packing group	III	III	III
Environmental hazards	No.	Yes.	No.
Additional information	Reportable quantity 5000.5 lbs / 2270.2 kg [697.36 gal / 2639.8 L] Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation requirements.	-	-

Section 14. Transport information

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Section 15. Regulatory information

U.S. Federal regulations : **United States inventory (TSCA 8b):** All components are listed or exempted.

Clean Water Act (CWA) 307: Benzene

Clean Water Act (CWA) 311: Benzene

This material is classified as an oil under Section 311 of the Clean Water Act (CWA) and the Oil Pollution Act of 1990 (OPA). Discharges or spills which produce a visible sheen on waters of the United States, their adjoining shorelines, or into conduits leading to surface waters must be reported to the EPA's National Response Center at (800) 424-8802.

SARA 302/304

Composition/information on ingredients

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : Fire hazard
Immediate (acute) health hazard
Delayed (chronic) health hazard

Composition/information on ingredients

Name	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
Cumene	Yes.	No.	No.	Yes.	Yes.

SARA 313

	Product name	CAS number	%
Form R - Reporting requirements	Cumene	98-82-8	99 - 100
Supplier notification	Cumene	98-82-8	99 - 100

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

State regulations

Massachusetts : The following components are listed: CUMENE
New York : The following components are listed: Benzene, 1-methylethyl-
New Jersey : The following components are listed: CUMENE; BENZENE, (1-METHYLETHYL)-
Pennsylvania : The following components are listed: BENZENE, (1-METHYLETHYL)-

California Prop. 65

WARNING: This product contains a chemical known to the State of California to cause cancer.

WARNING: This product contains less than 1% of a chemical known to the State of California to cause birth defects or other reproductive harm.

Section 15. Regulatory information

Ingredient name	%	Cancer	Reproductive	No significant risk level	Maximum acceptable dosage level
Cumene	99 - 100	Yes.	No.	No.	No.
Benzene	<0.01	Yes.	Yes.	6.4 µg/day (ingestion) 13 µg/day (inhalation)	24 µg/day (ingestion) 49 µg/day (inhalation)

International regulations

International lists

- : **Australia inventory (AICS)**: All components are listed or exempted.
- : **China inventory (IECSC)**: All components are listed or exempted.
- : **Japan inventory**: All components are listed or exempted.
- : **Korea inventory**: All components are listed or exempted.
- : **Malaysia Inventory (EHS Register)**: All components are listed or exempted.
- : **New Zealand Inventory of Chemicals (NZIoC)**: All components are listed or exempted.
- : **Philippines inventory (PICCS)**: All components are listed or exempted.
- : **Taiwan inventory (CSNN)**: All components are listed or exempted.

Canada inventory : All components are listed or exempted.

EU Inventory : All components are listed or exempted.

WHMIS (Canada) : Class B-2: Flammable liquid
Class D-2A: Material causing other toxic effects (Very toxic).

Section 16. Other information

National Fire Protection Association (U.S.A.)



Reprinted with permission from NFPA 704-2001, Identification of the Hazards of Materials for Emergency Response Copyright ©1997, National Fire Protection Association, Quincy, MA 02269. This reprinted material is not the complete and official position of the National Fire Protection Association, on the referenced subject which is represented only by the standard in its entirety.

Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

History

Date of issue/Date of revision : 1/27/2015.

Key to abbreviations

- : ATE = Acute Toxicity Estimate
- : BCF = Bioconcentration Factor
- : GHS = Globally Harmonized System of Classification and Labelling of Chemicals
- : IATA = International Air Transport Association
- : IBC = Intermediate Bulk Container
- : IMDG = International Maritime Dangerous Goods
- : LogPow = logarithm of the octanol/water partition coefficient
- : MARPOL 73/78 = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
- : UN = United Nations

Notice to reader

Section 16. Other information

THE INFORMATION IN THIS SAFETY DATA SHEET (SDS) WAS OBTAINED FROM SOURCES WHICH WE BELIEVE ARE RELIABLE. HOWEVER, THE INFORMATION IS PROVIDED WITHOUT ANY WARRANTY, EXPRESSED OR IMPLIED REGARDING ITS CORRECTNESS OR ACCURACY. SOME INFORMATION PRESENTED AND CONCLUSIONS DRAWN HEREIN ARE FROM SOURCES OTHER THAN DIRECT TEST DATA ON THE SUBSTANCE ITSELF. THIS SDS WAS PREPARED AND IS TO BE USED ONLY FOR THIS PRODUCT. IF THE PRODUCT IS USED AS A COMPONENT IN ANOTHER PRODUCT, THIS SDS INFORMATION MAY NOT BE APPLICABLE. USERS SHOULD MAKE THEIR OWN INVESTIGATIONS TO DETERMINE THE SUITABILITY OF THE INFORMATION OR PRODUCTS FOR THEIR PARTICULAR PURPOSE OR APPLICATION.

THE CONDITIONS OR METHODS OF HANDLING, STORAGE, USE, AND/OR DISPOSAL OF THE PRODUCT ARE BEYOND OUR CONTROL AND MAY BE BEYOND OUR KNOWLEDGE. FOR THIS AND OTHER REASONS, WE DO NOT ASSUME RESPONSIBILITY AND EXPRESSLY DISCLAIM LIABILITY FOR ANY LOSS, DAMAGE OR EXPENSE ARISING OUT OF OR IN ANY WAY CONNECTED WITH HANDLING, STORAGE, USE OR DISPOSAL OF THE PRODUCT.

CITGO is a registered trademark of CITGO Petroleum Corporation