## **SAFETY DATA SHEET**



#### 1. Identification

Product identifier Ethanol

Other means of identification

Synonyms Ethyl Alcohol

Recommended use Fuel.

**Recommended restrictions** Uses other than the recommended use.

Manufacturer/Importer/Supplier/Distributor information

Company name CHS Inc.

Address P.O. Box 64089

Mail Station 525

St. Paul, MN 55164-0089 United States of America

**Telephone numbers** Transportation Emergency (CHEMTREC):

1-800-424-9300 Technical Information: 1-651-355-8443

SDS Information: 1-651-355-8445

## 2. Hazard(s) identification

Physical hazardsFlammable liquidsCategory 2

Health hazards Skin corrosion/irritation Category 2

Serious eye damage/eye irritation Category 2
Germ cell mutagenicity Category 1B
Carcinogenicity Category 1A
Reproductive toxicity Category 2
Aspiration hazard Category 1

**Environmental hazards** Hazardous to the aquatic environment, acute

hazard

card

Hazardous to the aquatic environment, long-term hazard

OSHA defined hazards Not classified.

Label elements



Signal word Danger

**Hazard statement** Highly flammable liquid and vapor. Causes skin irritation. Causes serious eye irritation. May

cause genetic defects. May cause cancer. Suspected of damaging fertility or the unborn child. May be fatal if swallowed and enters airways. Harmful to aquatic life. Harmful to aquatic life with

Category 3

Category 3

long lasting effects.

**Precautionary statement** 

**Prevention** Obtain special instructions before use. Do not handle until all safety precautions have been read

and understood. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Wash thoroughly after handling. Avoid release to the environment. Wear protective gloves/protective clothing/eye protection/face protection.

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If swallowed: Immediately call a poison center/doctor. Do NOT induce vomiting. If on skin (or hair): Response

Take off immediately all contaminated clothing. Rinse skin with water/shower. If skin irritation occurs: Get medical advice/attention. Take off contaminated clothing and wash it before reuse. 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 advice/attention. If exposed or concerned: Get medical advice/attention. In case of fire: Use appropriate media to extinguish.

**Storage** Store in a well-ventilated place. Keep cool. Store locked up.

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

Hazard(s) not otherwise classified (HNOC)

None known.

Supplemental information

None.

## 3. Composition/information on ingredients

#### **Mixtures**

Ingestion

Chemical name	CAS number	%	
Gasoline	86290-81-5	0 - 10	
Benzene	71-43-2	≤ 0.3	
Ethanol	64-17-5	≥ 90	

Composition comments

Any concentration shown as a range is to protect confidentiality or is due to batch variation. All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

#### 4. First-aid measures

Inhalation Move to fresh air. Call a physician if symptoms develop or persist.

Take off immediately all contaminated clothing. Rinse skin with water/shower. If skin irritation Skin contact

occurs: Get medical advice/attention. Wash contaminated clothing before reuse.

Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if Eye contact present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.

Call a physician or poison control center immediately. Rinse mouth. Do not induce vomiting. If

vomiting occurs, keep head low so that stomach content doesn't get into the lungs.

Aspiration may cause pulmonary edema and pneumonitis. Be aware that symptoms of chemical Most important pneumonia (shortness of breath) may occur several hours after exposure. Headache. Severe eye symptoms/effects, acute and irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Coughing. delayed

Skin irritation. May cause redness and pain.

Indication of immediate medical attention and special treatment needed

Provide general supportive measures and treat symptomatically. Thermal burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Keep victim under observation. Symptoms may be delayed.

**General information** 

Take off all contaminated clothing immediately. IF exposed or concerned: Get medical advice/attention. If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. Wash contaminated clothing before reuse.

#### 5. Fire-fighting measures

Suitable extinguishing media Unsuitable extinguishing

Water fog. Alcohol resistant foam. Dry chemical powder. Carbon dioxide (CO2).

Do not use water jet as an extinguisher, as this will spread the fire.

Specific hazards arising from the chemical

Vapors may form explosive mixtures with air. Vapors may travel considerable distance to a source of ignition and flash back. During fire, gases hazardous to health may be formed such as: Carbon monoxide. Carbon dioxide.

In case of fire and/or explosion do not breathe fumes. Move containers from fire area if you can do

Special protective equipment and precautions for firefighters

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Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Fire fighting equipment/instructions Specific methods

so without risk. Water runoff can cause environmental damage. Use standard firefighting procedures and consider the hazards of other involved materials.

General fire hazards Extremely flammable liquid and vapor.

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## 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Wear appropriate protective equipment and clothing during clean-up. Do not breathe mist/vapors. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Use appropriate containment to avoid environmental contamination. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

# Methods and materials for containment and cleaning up

Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Keep combustibles (wood, paper, oil, etc.) away from spilled material. Take precautionary measures against static discharge. Use only non-sparking tools. Prevent entry into waterways, sewer, basements or confined areas.

Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Following product recovery, flush area with water.

Small Spills: Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use. Put material in suitable, covered, labeled containers. For waste disposal, see section 13 of the SDS. The product is insoluble in water.

## **Environmental precautions**

Avoid release to the environment. Inform appropriate managerial or supervisory personnel of all environmental releases. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground. Use appropriate containment to avoid environmental contamination.

## 7. Handling and storage

Precautions for safe handling

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Explosion-proof general and local exhaust ventilation. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Use non-sparking tools and explosion-proof equipment. Do not breathe mist/vapors. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. When using, do not eat, drink or smoke. Pregnant or breastfeeding women must not handle this product. Should be handled in closed systems, if possible. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Avoid release to the environment. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities

Store locked up. Keep away from heat, sparks and open flame. Prevent electrostatic charge build-up by using common bonding and grounding techniques. Store in a cool, dry place out of direct sunlight. Store in tightly closed container. Store in a well-ventilated place. Keep in an area equipped with sprinklers. Do not store above the following temperature: 113°C (235.4°F). Store away from incompatible materials (see Section 10 of the SDS).

## 8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Components	Туре	Value		
Benzene (CAS 71-43-2)	STEL	5 ppm		
	TWA	1 ppm		
US. OSHA Table Z-1 Permissible Exposure Limits (PEL) for Air Contaminants (29 CFR 1910.1000) Components Type Value				
Ethanol (CAS 64-17-5)	PEL	1900 mg/m3		
		1000 ppm		
US. OSHA Table Z-2 Permissible Exposure Limits (PEL) (29 CFR 1910.1000)				
Components	Туре	Value		
Benzene (CAS 71-43-2)	Ceiling	25 ppm		
	TWA	10 ppm		

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US. ACGIH Threshold Limit Values Components	(TLV) Type	Value	
Benzene (CAS 71-43-2)	TWA	0.02 ppm	
Ethanol (CAS 64-17-5)	STEL	1000 ppm	
Gasoline (CAS 86290-81-5)	STEL	500 ppm	
	TWA	300 ppm	
NIOSH. Immediately Dangerous to	Life or Health (IDLH) Values	, as amended	
Components	Туре	Value	
Benzene (CAS 71-43-2)	IDLH	1.2 %	
		500 ppm	
Ethanol (CAS 64-17-5)	IDLH	3.3 %	
		3300 ppm	
US. NIOSH: Pocket Guide to Chemical Hazards			
Components	Туре	Value	
Benzene (CAS 71-43-2)	STEL	1 ppm	
	TWA	0.1 ppm	
Ethanol (CAS 64-17-5)	TWA	1900 mg/m3	
		1000 ppm	

#### **Biological limit values**

Α	C	G	I	ŀ	1

Components	Value	Determinant	Specimen	Sampling Time
Benzene (CAS 71-43-2)	500 μg/g	t,t-Muconic acid	Creatinine in urine	*
ACGIH Biological Expos Components	ure Indices (BEI) Value	Determinant	Specimen	Sampling Time
Benzene (CAS 71-43-2)	25 μg/g	S-Phenylmerca pturic acid	Creatinine in urine	*

<sup>\* -</sup> For sampling details, please see the source document.

### **Exposure guidelines**

US - California OELs: Skin designation

Benzene (CAS 71-43-2) Can be absorbed through the skin.

US ACGIH Threshold Limit Values: Skin designation

Benzene (CAS 71-43-2) Danger of cutaneous absorption

Appropriate engineering

controls

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Explosion-proof general and local exhaust ventilation. Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Provide eyewash station and safety shower.

## Individual protection measures, such as personal protective equipment

**Eye/face protection** Wear chemical splash goggles, face shield, or safety glasses with side shields as appropriate for

risk of exposure.

Skin protection

Hand protection Wear appropriate chemical resistant gloves. Nitrile gloves are recommended. 4-8h break through

time The most suitable glove must be chosen in consultation with the gloves supplier, who can

inform about the breakthrough time of the glove material.

Skin protection

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Other Wear appropriate chemical resistant clothing. Use of an impervious apron is recommended. Long

sleeved clothing. Use of impervious boots is recommended.

**Respiratory protection** If engineering controls do not maintain airborne concentrations below recommended exposure

limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. Chemical respirator with organic vapor cartridge and full facepiece. Wear a NIOSH-approved (or equivalent) respirator as needed. In the United States of America, if respirators are used, a program should be instituted to assure

compliance with OSHA 29 CFR 1910.134.

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Thermal hazards Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations

Observe any medical surveillance requirements. When using do not smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

## 9. Physical and chemical properties

**Appearance** 

Physical state Liquid. Liquid. **Form** Colorless Color

Odor Gasoline, Alcohol. **Odor threshold** Not available. Not available. Hq -173.2 °F (-114 °C) Melting point/freezing point

Initial boiling point and boiling

range

165.2 - 174.2 °F (74 - 79 °C)

Flash point

-5.8 °F (-21 °C) Tagliabue Closed cup

3.2 (Butyl acetate = 1) **Evaporation rate** 

Flammability (solid, gas) Not applicable.

Upper/lower flammability or explosive limits

3.3 % Explosive limit - lower (%) 19 % Explosive limit - upper (%)

Vapor pressure 6 kPa (100.04 °F (37.8 °C))

> 1 (Air = 1)Vapor density

Relative density 0.79

Solubility(ies)

Miscible. Solubility (water)

Partition coefficient Not applicable, product is a mixture.

(n-octanol/water)

424.4 °F (218 °C) **Auto-ignition temperature** Not available. **Decomposition temperature Viscosity** Not available.

Other information

Not explosive. **Explosive properties** Not oxidizing. Oxidizing properties

## 10. Stability and reactivity

Reactivity The product is stable and non-reactive under normal conditions of use, storage and transport.

**Chemical stability** Material is stable under normal conditions.

Possibility of hazardous

reactions

No dangerous reaction known under conditions of normal use.

Avoid heat, sparks, open flames and other ignition sources. Avoid temperatures exceeding the Conditions to avoid

flash point. Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or

sources of ignition. Contact with incompatible materials.

Strong oxidizing agents. Acids. Halogens. Alkalis. Incompatible materials **Hazardous decomposition** 

products

No hazardous decomposition products are known.

## 11. Toxicological information

Information on likely routes of exposure

Prolonged inhalation may be harmful. Inhalation

Skin contact Causes skin irritation.

Eye contact Causes serious eye irritation.

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**Ingestion** Droplets of the product aspirated into the lungs through ingestion or vomiting may cause a serious

Coughing. Skin irritation. May cause redness and pain.

chemical pneumonia.

Symptoms related to the physical, chemical and toxicological characteristics

Aspiration may cause pulmonary edema and pneumonitis. Be aware that symptoms of chemical pneumonia (shortness of breath) may occur several hours after exposure. Headache. Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision.

Information on toxicological effects

Acute toxicity Not expected to be acutely toxic.

Components Species Test Results

Benzene (CAS 71-43-2)

<u>Acute</u>

Dermal

LD50 Rabbit > 8260 mg/kg

Inhalation

Vapor

LC50 Rat 44.66 mg/l, 4 Hours

Oral

LD50 Rat 810 mg/l

Ethanol (CAS 64-17-5)

**Acute** 

**Dermal** 

LD50 Rat > 2000 mg/kg

Inhalation

Vapor

LC50 Mouse 39 g/m3, 4 Hours

Oral

LD50 Rat 7000 - 11000 mg/kg

**Skin corrosion/irritation** Causes skin irritation.

Serious eye damage/eye

Causes serious eye irritation.

irritation

Respiratory or skin sensitization

**Respiratory sensitization** Not a respiratory sensitizer.

**Skin sensitization** This product is not expected to cause skin sensitization.

**Germ cell mutagenicity** May cause genetic defects.

Carcinogenicity May cause cancer.

IARC Monographs. Overall Evaluation of Carcinogenicity

Benzene (CAS 71-43-2) 1 Carcinogenic to humans.

Gasoline (CAS 86290-81-5) 2B Possibly carcinogenic to humans.

NTP Report on Carcinogens

Benzene (CAS 71-43-2) Known To Be Human Carcinogen.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Benzene (CAS 71-43-2) Cancer

**Reproductive toxicity** Suspected of damaging fertility or the unborn child.

Specific target organ toxicity -

single exposure

Not classified.

Specific target organ toxicity -

repeated exposure

Not classified.

**Aspiration hazard** May be fatal if swallowed and enters airways.

**Chronic effects** Prolonged inhalation may be harmful. Prolonged exposure may cause chronic effects.

12. Ecological information

**Ecotoxicity** Harmful to aquatic life with long lasting effects.

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Components		Species	Test Results
Benzene (CAS 71-43-2)			
Aquatic			
Acute			
Algae	EC50	Pseudokirchneriella subcapitata	29 mg/l, 72 Hours
Crustacea	EC50	Daphnia magna	10 mg/l, 48 hours
Fish	LC50	Oncorhynchus mykiss	5.3 mg/l, 96 hours
Chronic			
Algae	NOEC	Selenastrum capricornutum	41 mg/l, 8 days
Crustacea	NOEC	Ceriodaphnia dubia	3 mg/l, 7 days
Fish	NOEC	Pimephales promelas	0.8 mg/l, 32 days
Ethanol (CAS 64-17-5)			
Aquatic			
Acute			
Crustacea	LC50	Ceriodaphnia dubia	5012 mg/l, 48 hours
		Daphnia magna	454 mg/l, 11 days
Fish	LC50	Pimephales promelas	13480 mg/l, 96 hours
Chronic			
Crustacea	NOEC	Ceriodaphnia dubia	9.6 mg/l, 10 days
sistence and degradability	No data is	available on the degradability of this prod	uct.
accumulative potential	No data available on bioaccumulation.		
Partition coefficient n-octa	nol / water (l	og Kow)	
Benzene (CAS 71-43-2) Ethanol (CAS 64-17-5)		2.13 -0.31	
pility in soil	This product is miscible in water.		
er adverse effects	Oil spills are generally hazardous to the environment. The product contains volatile organic compounds which have a photochemical ozone creation potential. This product contains one or more substances identified as hazardous air pollutants (HAPs) per the US Federal Clean Air Act		

(see section 15).

## 13. Disposal considerations

**Disposal instructions** Dispose of this material and its container to hazardous or special waste collection point. Incinerate

the material under controlled conditions in an approved incinerator. Do not incinerate sealed containers. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in

accordance with local/regional/national/international regulations.

Local disposal regulations Dispose in accordance with all applicable regulations.

Hazardous waste code D001: Waste Flammable material with a flash point <140 F

D018: Waste Benzene

The waste code should be assigned in discussion between the user, the producer and the waste

disposal company.

Waste from residues / unused

products

Dispose of in accordance with local regulations. Empty containers or liners may retain some

product residues. This material and its container must be disposed of in a safe manner.

Contaminated packaging Since emptied containers may retain product residue, follow label warnings even after container is

emptied. Empty containers should be taken to an approved waste handling site for recycling or

disposal.

## 14. Transport information

DOT

**UN** number

Ethanol or Ethyl alcohol or Ethanol solutions or Ethyl alcohol solutions **UN** proper shipping name

Transport hazard class(es)

Class 3 **Subsidiary hazard** 3 Label(s) Ш Packing group

**Environmental hazards** 

Marine pollutant No.

Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

24, IB2, T4, TP1 Special provisions

4b. 150 Packaging exceptions 202 Packaging non bulk Packaging bulk 242

**IATA** 

UN1170 **UN** number Ethanol **UN proper shipping name** 

Transport hazard class(es)

3 Class Subsidiary hazard Packing group Ш **Environmental hazards** No. **ERG Code** 3L

Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

**IMDG** 

UN1170 **UN** number

**UN proper shipping name** ETHANOL (ETHYL ALCOHOL) or ETHANOL SOLUTION (ETHYL ALCOHOL SOLUTION)

Transport hazard class(es)

3 Class Subsidiary hazard Ш Packing group **Environmental hazards** 

Marine pollutant No. **EmS** F-E. S-D

Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

Transport in bulk according to

Annex II of MARPOL 73/78 and

the IBC Code

15. Regulatory information

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication **US federal regulations** 

Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not established.

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Not listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Benzene (CAS 71-43-2) Cancer

Central nervous system

Blood Aspiration Skin Eve

respiratory tract irritation

Flammability

**Toxic Substances Control Act (TSCA)** One or more components of the mixture are not on the TSCA 8(b) inventory

or are designated "inactive".

Superfund Amendments and Reauthorization Act of 1986 (SARA)

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous Yes

chemical

Ethanol SDS US Classified hazard categories

Flammable (gases, aerosols, liquids, or solids)

Skin corrosion or irritation

Serious eye damage or eye irritation

Germ cell mutagenicity Carcinogenicity Reproductive toxicity Aspiration hazard

SARA 313 (TRI reporting)

**CAS** number % by wt. **Chemical name** 71-43-2 Benzene ≤ 0.3

## Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Benzene (CAS 71-43-2)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act

Contains component(s) regulated under the Safe Drinking Water Act.

(SDWA)

#### FEMA Priority Substances Respiratory Health and Safety in the Flavor Manufacturing Workplace

Ethanol (CAS 64-17-5) Low priority

#### **US** state regulations

#### **US. Massachusetts RTK - Substance List**

Benzene (CAS 71-43-2) Ethanol (CAS 64-17-5)

#### US. New Jersey Worker and Community Right-to-Know Act

Benzene (CAS 71-43-2) Ethanol (CAS 64-17-5)

## US. Pennsylvania Worker and Community Right-to-Know Law

Benzene (CAS 71-43-2) Ethanol (CAS 64-17-5) Gasoline (CAS 86290-81-5)

#### US. Rhode Island RTK

Benzene (CAS 71-43-2) Ethanol (CAS 64-17-5)

### **California Proposition 65**



WARNING: This product can expose you to Benzene, which is known to the State of California to cause cancer

and birth defects or other reproductive harm. For more information go

to www.P65Warnings.ca.gov.

### California Proposition 65 - CRT: Listed date/Carcinogenic substance

Benzene (CAS 71-43-2) Listed: February 27, 1987

California Proposition 65 - CRT: Listed date/Developmental toxin

Listed: December 26, 1997 Benzene (CAS 71-43-2)

California Proposition 65 - CRT: Listed date/Male reproductive toxin

Benzene (CAS 71-43-2) Listed: December 26, 1997

## 16. Other information, including date of preparation or last revision

22-August-2024 Issue date

**Revision date** Version # 01

Health: 3\* **HMIS®** ratings

Flammability: 3 Physical hazard: 0

NFPA ratings



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#### Disclaimer

Notice to reader:

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Ethanol SDS US