

PAGE #:1 OF 10	PRODUCT SAFETY DATA SHEET MIDSCI	ISSUE DATE: 12/15/14	REV.:1 REV Date :02/13/18
DOCUMENT #: F/KC/QC 7.7.3-02	Product Name: Ethanol, (Ethyl Alcohol) Denatured		MIDSCI ITEM NO: KCA22645-4000

SECTION 1 - CHEMICAL IDENTIFICATION

PRODUCT NAME: Ethanol, (Ethyl Alcohol) Denatured
 MIDSCI CATALOG #: KCA22645-4000
 SUPPLIER'S NAME: MIDSCI
 SUPPLIERS ADDRESS: 115 Cassens Court, Fenton, MO, 63026
 EMERGENCY CONTACT: 1-800-424-9300
 OTHER INFORMATION: (800) 227-9997

SECTION 2 - HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

H225	Flammable liquids	Category 2
H311	Acute toxicity Dermal	Category 3
H319	Serious eye damage/eye irritation	Category 2A
H332	Acute toxicity, inhalation	Category 4
H340	Germ cell mutagenicity	Category 1B
H350	Carcinogenicity	Category 1B
H361	Reproductive toxicity	Category 2
H371	Specific target organ toxicity - single exposure	Category 2
H372	Specific target organ toxicity - repeated exposure	Category 1
H401	Acute aquatic toxicity	Category 2
H411	Hazardous to the aquatic environment, Long term hazard	Category 2

2.2 GHS Label elements, including Hazard and Precautionary Statement(s) Pictogram



Signal word: Danger

Hazard statement(s)

H225	High Flammable liquid and vapour
H319	Cause Serious Eye irritation
H332	Harmful if inhaled
H340	May cause genetic defects
H350	May causing cancer

PAGE #:2 OF 10	PRODUCT SAFETY DATA SHEET MIDSCI	ISSUE DATE: 12/15/14	REV.:1 REV Date :02/13/18
DOCUMENT #: F/KC/QC 7.7.3-02	Product Name: Ethanol, (Ethyl Alcohol) Denatured		MIDSCI ITEM NO: KCA22645-4000

H361	Suspected of damaging fertility or the unborn child
H371	May Cause damage to organs.
H372	Causes damage to organs through prolonged or repeated exposure
H311	Toxic in contact with skin
H401	toxic to aquatic life
H411	Toxic to aquatic life with long lasting effects

Prevention, Response, Storage and Disposal Precautionary Statement(s)

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P210	Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P233	Keep container tightly closed.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ventilating/lighting/equipment
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge
P260	Do not breathe dust/fume/gas/mist/vapors/spray.
P261	Avoid breathing dust/fume/gas/mist/vapors/spray.
P264	Wash skin thoroughly after handling
P270	Do not eat, drink or smoke when using this product.
P273	Avoid release to the environment
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P303 + P361 + P353	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P308 + P311	IF exposed or concerned: call a POISON CENTER or doctor/ physician
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P321	Specific treatment (see supplemental first aid instructions on this label).
P361 + P364	Take off contaminated clothing and wash before reuse.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction
P391	Collect spillage.

PAGE #:3 OF 10	PRODUCT SAFETY DATA SHEET MIDSCI	ISSUE DATE: 12/15/14	REV.:1 REV Date :02/13/18
DOCUMENT #: F/KC/QC 7.7.3-02	Product Name: Ethanol, (Ethyl Alcohol) Denatured		MIDSCI ITEM NO: KCA22645-4000

P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

SECTION 3- COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS Number	Composition %age
Ethanol	64-17-5	92.24
Methanol	67-56-1	3.7
2-pentanone, 4-Methyl	108.10-1	1.91
Ethyl acetate	141-78-6	1.33
Solvent Naphtha (Petroleum), Light Aliph	64742-89--8	0.67
Other Component below reportable levels	N/A	0.15

SECTION 4 - FIRST-AID MEASURES

4.1 Description of first aid measures

General advice: Consult a doctor and show this safety data sheet.

- i. **If inhaled:** Remove to fresh air and monitor breathing. If breathing becomes difficult, give oxygen. If breathing stops, give artificial respiration. Consult a doctor.
- ii. **In case of skin contact:** Immediately wash skin with copious amounts of soap and water for at least 15 minutes. Remove contaminated clothing and shoes and wash before reuse. Consult a doctor.
- iii. **In case of eye contact:** Flush with copious amounts of water for at least 15 minutes. Consult a doctor.
- iv. **If swallowed:** Rinse mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Consult a doctor.

4.2 Most important symptoms and effects, both acute and delayed: To the best of our knowledge, the chemical, physical and toxicological properties have not been thoroughly investigated.

4.3 Indication of immediate medical attention and special treatment needed: Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

SECTION 5 - FIRE FIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide

5.2 Special hazards arising from the substance or mixture: Carbon monoxide (CO) Carbon dioxide (CO₂). Flammable. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Containers may explode when heated. Vapors may form explosive mixtures with air.

5.3 Precautions for fire-fighters: Wear suitable protective clothing to prevent contact with skin and eyes and self-contained breathing apparatus. As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

PAGE #:4 OF 10	PRODUCT SAFETY DATA SHEET MIDSCI	ISSUE DATE: 12/15/14	REV.: 1 REV Date : 02/13/18
DOCUMENT #: F/KC/QC 7.7.3-02	Product Name: Ethanol, (Ethyl Alcohol) Denatured		MIDSCI ITEM NO: KCA22645-4000

5.4 Further information: No data available

SECTION 6 - ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures: Do not take action without suitable protective clothing - see section 8 of SDS. Evacuate personnel to safe areas. Ensure adequate ventilation. Avoid breathing vapors, mist, dust or gas.

6.2 Environmental precautions: Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up: Cover spillage with suitable absorbent material. Using non-spark tools, sweep up material and place in an appropriate container. Decontaminate spill site with 10% caustic solution and ventilate area until after disposal is complete. Hold all material for appropriate disposal as described under section 13 of SDS.

6.4 Reference to other sections: For required PPE see section 8. For disposal see section 13.

SECTION 7 - HANDLING AND STORAGE

7.1 Precautions for safe handling: Use in a chemical fume hood, with air supplied by an independent system. Avoid inhalation, contact with eyes, skin and clothing. Avoid the formation of dust and aerosols. Use in a well-ventilated area. Keep away from sources of ignition. Avoid prolonged or repeated exposure.

7.2 Conditions for safe storage, including any incompatibilities: Store in cool, well-ventilated area. Keep away from direct sunlight. Keep container tightly sealed until ready for use. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Flammable liquid. Keep away from heat and sources of ignition. Flammables area.

7.3 Specific end use(s): Use in a laboratory fume hood where possible. Refer to employer's COSHH risk assessment.

SECTION 8 - EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters: Components with workplace control parameters:

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH
Ethyl alcohol	STEL: 1000 ppm	(Vacated) TWA: 1000 ppm (Vacated) TWA: 1900 mg/m ³ TWA: 1000 ppm TWA: 1900 mg/m ³	IDLH: 3300 ppm TWA: 1000 ppm TWA: 1900 mg/m ³
2-pentanone, 4-Methyl	TWA: 20 ppm STEL: 75 ppm	(Vacated) TWA: 50 ppm (Vacated) TWA: 205 mg/m ³ (Vacated) STEL: 75 ppm (Vacated) STEL: 300 mg/m ³ TWA: 100 ppm TWA: 410 mg/m ³	IDLH: 50 ppm TWA: 50 ppm TWA: 205 mg/m ³ STEL: 75 ppm STEL: 300 mg/m ³
Ethyl acetate	TWA: 400 ppm	(Vacated) TWA: 400 ppm Vacated) TWA: 1400 mg/m ³	IDLH: 2000 ppm TWA: 400 ppm

PAGE #: 5 OF 10	PRODUCT SAFETY DATA SHEET MIDSCI	ISSUE DATE: 12/15/14	REV.: 1 REV Date : 02/13/18
DOCUMENT #: F/KC/QC 7.7.3-02	Product Name: Ethanol, (Ethyl Alcohol) Denatured		MIDSCI ITEM NO: KCA22645-4000

		TWA: 400 ppm TWA: 1400 mg/m ³	TWA: 1400 mg/m ³
Methyl alcohol	TWA: 200 ppm STEL: 250 ppm Skin	(Vacated) TWA: 200 ppm (Vacated) TWA: 260 mg/m ³ (Vacated) STEL: 250 ppm (Vacated) STEL: 325 mg/m ³ Skin TWA: 200 ppm TWA: 260 mg/m ³	IDLH: 6000 ppm TWA: 200 ppm TWA: 260 mg/m ³ STEL: 250 ppm STEL: 325 mg/m ³

Component	Quebec	Mexico OEL (TWA)	Ontario TWAEV
Ethyl alcohol	TWA: 1000 ppm TWA: 1880 mg/m ³	TWA: 1000 ppm TWA: 1900 mg/m ³	STEL: 1000 ppm
2-pentanone, 4-Methyl	TWA: 50 ppm TWA: 205 mg/m ³ STEL: 75 ppm STEL: 307 mg/m ³	TWA: 50 ppm TWA: 205 mg/m ³ STEL: 75 ppm STEL: 307 mg/m ³	TWA: 20 ppm STEL: 75 ppm
Ethyl acetate	TWA: 400 ppm TWA: 1440 mg/m ³	TWA: 400 ppm TWA: 1400 mg/m ³	TWA: 400 ppm
Methyl alcohol	TWA: 200 ppm TWA: 262 mg/m ³ STEL: 250 ppm STEL: 328 mg/m ³ Skin	TWA: 200 ppm TWA: 260 mg/m ³ STEL: 250 ppm STEL: 310 mg/m ³	TWA: 200 ppm STEL: 250 ppm Skin

- ❖ **ACGIH:** American Conference of Governmental Industrial Hygienists.
- ❖ **OSHA:** Occupational Safety and Health Administration.
- ❖ **NIOSH IDLH:** The National Institute for Occupational Safety and Health Immediately Dangerous to Life or Health.

8.2 Exposure Controls

- i. **Appropriate engineering controls:** Use in a fume hood where applicable. Ensure all engineering measures described under section 7 of SDS are in place. Ensure laboratory is equipped with a safety shower and eye wash station.

8.3 Personal protective equipment

- i. **Eye/face protection:** Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).
- ii. **Skin protection:** Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166

PAGE #:6 OF 10	PRODUCT SAFETY DATA SHEET MIDSCI	ISSUE DATE: 12/15/14	REV.:1 REV Date :02/13/18
DOCUMENT #: F/KC/QC 7.7.3-02	Product Name: Ethanol, (Ethyl Alcohol) Denatured		MIDSCI ITEM NO: KCA22645-4000

- iii. **Body Protection:** Wear appropriate protective clothing. Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.
- iv. **Respiratory Protection:** Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.
- v. **Control of environmental exposure:** Do not let product enter drains

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	Colorless Liquid	Vapor Pressure	81.9 hPa
Odor	Alcohol	Density	6.63 lbs/gal
Odor Threshold	No Data Available	Relative Density	No Data Available
pH	No Data Available	Water Solubility	No Data Available
Melting / Freezing Point	- 112.5 °C	Partition Coefficient	No Data Available
Initial Boiling Point Range	78.73 °C	Auto-Ignition Temperature	360.71 °C
Flash Point	4.4 °C	Decomposition Temperature	No Data Available
Evaporation Rate	No Data Available	Specific Gravity	0.8
Flammability (Solid, Gas)	No Data Available	Percent Volatile (Estimated)	99.33 %
Upper / Lower Flammability Or Explosive Limits (Estimated)	Lower Limits 7.5% Upper Limits: 27.8%	VOC (Weight %) (Estimated)	99.18

SECTION 10 - STABILITY AND REACTIVITY

Stability: Stable under recommended storage conditions.

Hazardous Polymerization: No data available

Hazardous Decomposition Products: Carbon monoxide (CO), Carbon dioxide (CO₂), Thermal decomposition can lead to release of irritating gases and vapors.

Conditions to Avoid: Incompatible products. Heat, flames and sparks.

Incompatibilities: Strong oxidizing agents, Strong acids, Strong bases, Metals, Acid anhydrides, Acid chlorides

SECTION 11 - TOXICOLOGICAL INFORMATION

Acute Toxicity

Component	LD50 Oral	LD50Dermal	LC50 inhalation
Ethanol	3450 mg/kg (Mouse)	Not Listed	20000 ppm/10H (Rat)
Methanol	1,187 - 2,769 mg/kg (Rat)	17,100 mg/kg (Rabbit)	128.2 mg/l (Rat) 4 h
2-pentanone, 4-Methyl	LD50 = 2080 mg/kg (Rat)	LD50 = 3000 mg/kg (Rabbit)	8.2 mg/L(Rat) 4 h

PAGE #: 7 OF 10	PRODUCT SAFETY DATA SHEET MIDSCI	ISSUE DATE: 12/15/14	REV.: 1 REV Date : 02/13/18
DOCUMENT #: F/KC/QC 7.7.3-02	Product Name: Ethanol, (Ethyl Alcohol) Denatured		MIDSCI ITEM NO: KCA22645-4000

Ethyl acetate	620 mg/kg (Rat)	> 20 mL/kg (Rabbit) > 18000 mg/kg (Rabbit)	58 mg/l (rat; 8 h)
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Carcinogenicity: The table below indicates whether each agency has listed any ingredient as a carcinogen

Component	CAS Number	IARC	NTP	ACGIH	OSHA
Ethanol	64-17-5	Group 1	Known	A3	Listed
2-pentanone, 4-Methyl	108.10-1	Group 2B	Not Listed	A3	Listed

SECTION 12 - ECOLOGICAL INFORMATION

Eco Toxicity: Do not empty into drains.

Component	Freshwater Fish	Microtox	Water Flea
Methyl alcohol	Pimephales promelas: LC50 > 10000 mg/L 96h	EC50 = 39000 mg/L 25 min EC50 = 40000 mg/L 15 min EC50 = 43000 mg/L 5 mi	EC50 > 10000 mg/L -24h

Component	Freshwater Algae	Freshwater Fish	Water Flea	Microtox
Ethanol	EC50 (72h) = 275 mg/l (Chlorella vulgaris)	Fathead minnow (Pimephales promelas) LC50 = 14200 mg/l/96h	EC50 = 9268mg/L/48h EC50 = 10800 mg/L/24h	Photobacterium phosphoreum:EC50 = 34634 mg/L/30 min Photobacterium phosphoreum:EC50 = 35470 mg/L/5 min

Component	Freshwater Algae	Freshwater Fish	Water Flea	Microtox
2-pentanone, 4-Methyl	EC50: 400 mg/L/96h	LC50: 496 - 514 mg/L, 96h flow-through (Pimephales promelas)	EC50: 170 mg/L/48h EC50: 4280.0 mg/L/24h	EC50 = 79.6 mg/L 5 min

Component	Freshwater Algae	Freshwater Fish	Water Flea	Microtox
Ethyl acetate	EC50 = 3300 mg/L/48h	Fathead minnow: LC50: 230 mg/l/ 96h Gold orfe: LC50: 270 mg/L/48	EC50 = 717 mg/L/48h	EC50 = 1180 mg/L 5 min EC50 = 1500 mg/L 15 min EC50 = 5870 mg/L 15 min EC50 = 7400 mg/L 2

PAGE #:8 OF 10	PRODUCT SAFETY DATA SHEET MIDSCI	ISSUE DATE: 12/15/14	REV.:1 REV Date :02/13/18
DOCUMENT #: F/KC/QC 7.7.3-02	Product Name: Ethanol, (Ethyl Alcohol) Denatured		MIDSCI ITEM NO: KCA22645-4000

Mobility

Component	log Pow
Ethanol	-0.31
Methyl alcohol	-0.77
Ethyl acetate	0.73
2-pentanone, 4-Methyl	1.31

Bioaccumulative potential: Oncorhynchus mykiss (rainbow trout) - 6 Months - 56.5 µg/l [factor (BCF): 23.39]

Persistence and degradability/ Mobility: No data available

Results of PBT and vPvB assessment: No data available

Other adverse effects: No data available

Chronic Toxicity: There are no known carcinogenic chemicals in this product

SECTION 13 - DISPOSAL CONSIDERATIONS

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

Component	RCRA - U Series Wastes	RCRA - P Series Wastes
Methanol	U154	
2-pentanone, 4-Methyl	U161	
Ethyl acetate	U112	

SECTION 14 - TRANSPORT INFORMATION

	UN#	Proper Shipping Name	Hazard Class	Packaging Group	ERG Number
DOT	1170	Ethanol Solution	3	II	127
TDG	1170	Ethanol Solution	3	II	127
IATA	1170	Ethanol Solution	3	II	127
IMDG/IMO	1170	Ethanol Solution	3	II	127

PAGE #:9 OF 10	PRODUCT SAFETY DATA SHEET MIDSCI	ISSUE DATE: 12/15/14	REV.:1 REV Date :02/13/18
DOCUMENT #: F/KC/QC 7.7.3-02	Product Name: Ethanol, (Ethyl Alcohol) Denatured		MIDSCI ITEM NO: KCA22645-4000

SECTION 15 - REGULATORY INFORMATION

INTERNATIONAL INVENTORIES

TSCA	DSL	NDSL	EINECS	NLP	PICCS	ENCS	AICS	CHINA	ECL
Listed	-	-	Listed	-	Listed	-	-	Listed	Listed

USA FEDERAL REGULATION

SARA 311/312 HAZARDOUS CATEGORIZATION

Acute Health Hazard	Chronic Health Hazard	Fire Hazard	Sudden Release Of Pressure Hazard	Reactive Hazard
Yes	Yes	Yes	No	No

SARA 313

Component	CAS#	Weight%	SARA 313 – Threshold Values %
Methyl alcohol	67-56-1	100	1.0
2-pentanone, 4-Methyl	108.10-1	>95	1.0

Clean Air Act

Component	CAS#	HAPS Data
Methyl alcohol	67-56-1	Listed
2-pentanone, 4-Methyl	108.10-1	Listed

California Proposition 65: This product contains Proposition 65 chemicals.

Component	CAS#	California Prop. 65	Category
Methyl alcohol	67-56-1	Developmental	Developmental
2-pentanone, 4-Methyl	108.10-1	Carcinogen Developmental	Developmental Carcinogen
Ethanol	64-17-5	Development (alcoholic beverages only)	Developmental Carcinogen

CERCLA

Component	Hazardous Substances RQs	CERCLA EHS RQs
Methyl alcohol	5000 lb	-
2-pentanone, 4-Methyl	5000 lb	-
Ethyl acetate	5000 lb	-

PAGE #:10 OF 10	PRODUCT SAFETY DATA SHEET MIDSCI	ISSUE DATE: 12/15/14	REV.:1 REV Date :02/13/18
DOCUMENT #: F/KC/QC 7.7.3-02	Product Name: Ethanol, (Ethyl Alcohol) Denatured		MIDSCI ITEM NO: KCA22645-4000

Clean Water Act: No Data Available
TSCA 12(b)/ OSHA: Not Applicable

STATE RIGHT TO KNOW

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Ethanol	Listed	Listed	Listed	Listed	Listed
Methanol	Listed	Listed	Listed	Listed	Listed
2-pentanone, 4-Methyl	Listed	Listed	Listed	Listed	Listed
Ethyl acetate	Listed	Listed	Listed	-	Listed

HMIS Rating

Health hazard	Chronic Health Hazard	Flammability	Physical Hazard
3	*	3	0

NFPA Rating

Health Hazard	Fire Hazard	Reactivity Hazard
3	3	0

US DEPARTMENT OF TRANSPORTATION

REPORTABLE QUANTITY (RQ)	DOT MARINE POLLUTANT	DOT SEVER MARINE POLLUTANT
Yes	No	No

U.S. DEPARTMENT OF HOMELAND SECURITY: This product does not contain any DHS chemicals.

Canada: This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the SDS contains all the information required by the CPR.

This SDS complies with the requirements of Regulation (EC).

SECTION 16 - OTHER INFORMATION

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. Research Products International Corp. shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. This product is sold for laboratory research and development purposes use only.