

SAFETY DATA SHEET

HEATSAVR



1. Identification of the substance/preparation and of the company/undertaking

Product name	:	HEATSAVR	Supplier	:	Flexible Solutions International 2614 Queenswood Dr. Victoria, B.C. V8N 1X5 Canada
Chemical product name	:	ISOPROPANOL	ETHANOL		
Synonyms	:	ISOPROPYL ALCOHOL; PROPAN-2-OL; 2-PROPANOL; DIMETHYL CARBINOL; IPA;	ETHYL ALCOHOL; HYDROXYETHANE; ETHANOL; EtOH		
EMERGENCY ONLY TELEPHONE NUMBER	:	Canutec (613) 996-6666	Telephone No.	:	(250) 477 - 9969
			Fax No.	:	(250) 477 - 9912
Formula	:	CH ₃ CHOHCH ₃ , CH ₃ CH ₂ OH	Molecular Mass	:	60.09

2. Hazards Identification

GHS label elements, including precautionary statement:



Signal Word:

Danger

Physical/Chemical Hazard:

H225 Highly flammable liquid and vapour.
H315 + H320 Causes skin and eye irritation.
H335 + H336 May cause respiratory irritation. May cause drowsiness or dizziness.
P501 Dispose of contents and container to an approved waste disposal plant.
P240 Ground/bond container and receiving equipment.
P337 + P313 If eye irritation persists: Get medical attention.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention.
P303 + P361 + P353 IF ON SKIN: Remove immediately all contaminated clothing. Rinse skin with water.
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P210 Keep away from heat, sparks, open flames, and hot surfaces. No smoking.
P233 Keep container tightly closed.
P403 + P235 Store in well-ventilated place. Keep cool.
P241 Use explosion-proof electrical, ventilation and lighting equipment.
P242 Use only non-sparking tools.
P264 Wash hands thoroughly after handling.
P280 Wear protective gloves and eye and face protection.

Potential Health Effects:

Organ	Description
Eyes	Can cause eye irritation. Common symptoms include stinging, tearing, and redness.
Ingestion	May cause dizziness, faintness, drowsiness, decreased awareness and responsiveness, euphoria, abdominal discomfort, nausea, vomiting, staggering gait, lack of coordination and coma.
Inhalation	High vapour concentrations may cause a burning sensation in the throat and nose, stinging and watering in the eyes. At concentrations which cause irritation, dizziness, faintness, drowsiness, nausea and vomiting may occur.

Skin	Mild irritant. Repeated or prolonged exposure may lead to dermatitis, erythema and scaling.
Chronic	Effects of Repeated Overexposure: Long term repeated oral exposure to ethanol may result in the development of progressive liver injury with fibrosis. Other Health Hazards: Repeated ingestion of ethanol by pregnant mothers has been shown to adversely affect the development of the fetal central nervous system and progression of fetal alcohol syndrome. Medical Conditions Aggravated by Overexposure: Repeated exposure to ethanol may aggravate previous liver condition. Skin contact may aggravate dermatitis.

3. Composition/Information on Ingredients

Chemical name: Heatsavr (Ethanol/Isopropanol)
Common name/Synonym: ISOPROPYL ALCOHOL; PROPAN-2-OL; 2-PROPANOL; DIMETYL CARBINOL; IPA; ETHYL ALCOHOL; HYDROXYETHANE

Chemical name*	CAS No.	%	EC Number	Symbol	R-Phrases
1) Isopropanol	67-63-0	4.28	200-661-7	F, Xi	R11, R36, R37, R67
2) Ethanol	64-17-5	85.72	200-578-6	F	R11
3) Organic Surfactant		N/A			

* Occupational Exposure Limit(s), if available, are listed in Section 8

Composition CONTAINS ISOPROPANOL AND ETHANOL

CAS No. 67-63-0 / 64-17-5

EINECS Number 200-661-7 / 200-578-6

4. First-Aid Measures

INGESTION	<ul style="list-style-type: none"> • Never give anything by mouth if victim is rapidly losing consciousness or is unconscious or convulsing. • DO NOT INDUCE VOMITING. • Have victim drink 250ml (8fl.oz.) of water to dilute material in stomach. • If vomiting occurs naturally, have victim lean forward to reduce risk of aspiration. • Seek Medical assistance immediately.
SKIN	<ul style="list-style-type: none"> • Flush contaminated area with water for at least 20 minutes. • Remove contaminated clothing under running water. • Completely decontaminate clothing before re-use, or discard. • If irritation occurs seek medical attention.
INHALATION	<ul style="list-style-type: none"> • Remove victim to fresh air. • Artificial respiration should be given if breathing has stopped and cardiopulmonary resuscitation if heart has stopped. • Oxygen may be given if necessary. • Seek Medical attention immediately.
EYES	<ul style="list-style-type: none"> • Immediately flush eyes with water for at least 20 minutes, holding the eyelids open. • Seek medical attention immediately.
NOTES TO PHYSICIAN	<p>Symptoms of ethanol intoxication vary with the alcohol level of the blood. Mild alcohol intoxication occurs at blood levels between 0.05% - 0.15% and approximately 25% of individuals will show signs of intoxication at these levels. Above 0.15% the person is definitely under the influence of ethanol and 50-95% of individuals at this level are clinically intoxicated. Severe poisoning occurs when the blood ethanol level is 0.3%-0.5%. Above 0.5% the individual will be comatose and death can occur. The unabsorbed ethanol should be removed by gastric lavage after intubating the patient to prevent aspiration.</p> <p>Avoid the use of depressant drugs or the excessive administration of fluids.</p>

5. Fire-Fighting Measures

<u>EXTINGUISHING MEDIA</u>	<ul style="list-style-type: none"> • Apply alcohol-type or all-purpose-type foams by manufacturers' recommended techniques for large fires. • Use carbon dioxide or dry chemical media for small fires. • Water is generally unsuitable for large open pools of alcohol and may help to spread the fire.
<u>UNUSUAL FIRE AND EXPLOSION HAZARDS</u>	<ul style="list-style-type: none"> • Vapours form from this product and may travel or be moved by air currents and ignited by pilot lights, other flames, spark, heaters, electrical equipment, static discharges or other ignition sources at locations distant from handling point.
<u>SPECIAL FIREFIGHTING PROCEDURES</u>	<ul style="list-style-type: none"> • Use water spray to cool fire-exposed containers and structures. • Use water spray to disperse vapours; reignition is possible. • Use self-contained breathing apparatus and protective clothing.

6. Accidental Release Measures

<u>SPILL</u>	<ul style="list-style-type: none"> • Contain spilled material. • Provide adequate ventilation. Provide adequate personnel protective equipment for responders. • Remove sources of heat, sparks or flames. • Spill should be collected in suitable containers or absorbed on a suitable absorbent material for subsequent disposal. Such containers used to contain spilled material and absorbent should be sealed off, otherwise the collected alcohol will evaporate from them.
<u>WASTE DISPOSAL</u>	<ul style="list-style-type: none"> • Waste material should be disposed of in a approved incinerator or in a designated landfill site, in compliance with all federal, provincial and local government regulations.

7. Handling and Storage

<u>PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING</u>	<ul style="list-style-type: none"> • Keep away from heat, sparks and flames. • Keep container closed when not in use. • Use with adequate ventilation. • Avoid breathing vapours. • Avoid contact with eyes and skin. • Wash exposed skin thoroughly after handling. • Take precautions to prevent static electricity build-up when transferring contents.
<u>OTHER PRECAUTIONS</u>	<ul style="list-style-type: none"> • Good personal hygiene practices are suggested, such as abstaining from eating, drinking and smoking in the workplace.

8. Exposure Controls/Personnel Protection

<u>RESPIRATORY EQUIPMENT</u>	<ul style="list-style-type: none"> • Up to 1000 ppm, an approved organic vapour cartridge respirator can be used. • For concentrations above 1000 ppm, an air-supplying respirator is recommended. • The user should consult a respirator guide, such as the Canadian Standards Association's guide Z94.4-M1982.
<u>VENTILATION</u>	<ul style="list-style-type: none"> • The ventilation system should be non-sparking, grounding and separate from other exhaust ventilation systems. • Local ventilation is recommended when handling.
<u>PROTECTIVE GLOVES</u>	<ul style="list-style-type: none"> • Neoprene, butyl or natural rubber.
<u>EYE PROTECTION</u>	<ul style="list-style-type: none"> • Chemical resistant monogoggles when handling.

**OTHER
PROTECTIVE
EQUIPMENT**

• Eye bath, safety shower and other protective equipment is required.

9. Physical and Chemical Properties

Physical state	:	Liquid.
Colour	:	Light Blue/Green.
Odour	:	Typical lower alcoholic odour.
Odour threshold	:	Approximately 0.1 to 5100 ppm for ethyl alcohol and 40 to 200 ppm for isopropyl alcohol, as reported in appendix 1 of the Canadian Standards Association guide Z94.4-M1982.
Boiling point	:	Approximately 78 to 83 deg. C
Melting point	:	Approximately minus 100 deg. C
Density	:	0.785 g/cm ³ at 20°C (68°F)
Vapour density	:	1.61 (Air = 1)
Vapour pressure	:	5.87 KPA @ 20 deg C. for 100% Ethanol, 4.26 KPA @ 20 deg. C. for 100% Isopropanol
Relative Density (Liquid)	:	0.7882 @ 20 deg. C.
Solubility in water	:	Complete
Solubility in oil-coefficient of water/oil distribution	:	Separates from oil
Partition coefficient N-octanol/water	:	0.032 approximately
pH	:	Not available.
Flash point	:	13 (Tag closed cup, ASTM D-56)
Evaporation rate	:	1.7 (butyl acetate = 1)
Lower flammability limit	:	3.3% V/V for 100% Ethanol, 2.5% V/V for 100% Isopropyl alcohol
Upper flammability limit	:	19% V/V for 100% Ethanol, 12% V/V for 100% Isopropyl alcohol
Fire Hazards in Presence of Various Substances	:	Highly flammable in presence of open flames, sparks and static discharge, of heat.
Auto-ignition temperature	:	Approximately 370 deg. C. (752°F)
Decomposition temperature	:	Specific data not available
% volatiles by volume	:	100
Viscosity	:	Approximately 1.35 cp @ 20 deg. C.
Chemical formula	:	Ethanol: C ₂ H ₅ -OH Molecular weight: 46.07 Isopropyl alcohol: CH ₃ -CHOH-CH ₃ Molecular weight: 60.9 Water: H ₂ O Molecular weight: 18.02

10. Stability and Reactivity

Chemical stability/reactivity	:	Stable.
Conditions to avoid	:	Sources of ignition
Possibility of hazardous reactions/ incompatibilities	:	Oxidizing materials
Hazardous combustion or decomposition products	:	Heating may produce: flammable gases. Combustion will generate: oxides of carbon.
Hazardous polymerization	:	Will not occur
Conditions to avoid	:	None currently known

11. Toxicological Information

INGREDIENT	% V/V	TLV, ppm	LC50, ppm/4h	LC50, mg/kg	LD50, mg/kg
			Rat, Inhal.	Rat, Oral	Rabbit, Skin
Ethyl Alcohol	95.24	1000	31,623	7,060	20,000
Isopropyl Alcohol	4.76	400	16,970	4,420	13,000
Water	Balance	N/A	N/A	N/A	N/A

Reference: ACGIH (1988-1989), RTECS (1983).

<u>INGESTION</u>	<ul style="list-style-type: none"> • May cause dizziness, faintness, drowsiness, decreased awareness and responsiveness, euphoria, abdominal discomfort, nausea, vomiting, staggering gait, lack of coordination and coma.
<u>SKIN ABSORPTION</u>	<ul style="list-style-type: none"> • No adverse effects with normal skin. However, potentially harmful amounts of material may be absorbed across markedly abraded skin when contact is sustained, particularly in children.
<u>INHALATION</u>	<ul style="list-style-type: none"> • High vapour concentrations may cause a burning sensation in the throat and nose, stinging and watering in the eyes. • At concentrations which cause irritation, dizziness, faintness, drowsiness, nausea and vomiting may occur.
<u>SKIN CONTACT</u>	<ul style="list-style-type: none"> • Mild Irritant. • Repeated or prolonged exposure may lead to dermatitis, erythema and scaling.
<u>EYE CONTACT</u>	<ul style="list-style-type: none"> • Severe eye irritant. • Vapours can irritate eyes. • Eye damage from contact with liquid is reversible and proper treatment will result in healing within a few days. • Damage is usually mild to moderate conjunctivitis, seen mainly as redness of the conjunctiva.
<u>EFFECTS OF LONG-TERM EXPOSURE</u>	<ul style="list-style-type: none"> • Long term repeated to ethanol may exacerbate liver injury produced from other causes.
<u>MEDICAL CONDITIONS AGGRAVATED BY OVEREXPOSURE</u>	<ul style="list-style-type: none"> • Repeated exposure to ethanol may exacerbate liver injury produced from other causes.
<u>OTHER-REPRODUCTIVE TOXICITY OF ETHANOL WHEN CONSUMED AS A BEVERAGE DURING PREGNANCY</u>	<ul style="list-style-type: none"> • Ethanol has been identified in studies as a developmental toxicant when consumed as a beverage during pregnancy.

12. Ecological Information

Ethyl Alcohol CAS 64-17-5

Ecotoxicity (aquatic and terrestrial, Where available) : LC50 / 96 Hours Oncorhynchus mykiss (rainbow trout) > 10,000 mg/l
 LC50 / 96 Hours Pimephales promelas (fathead minnow) > 13,400 mg/l
Toxicity to aquatic plants : Growth inhibition / 96 Hours Chlorella vulgaris (Fresh water algae) 1,000 mg/l
Toxicity to microorganisms : Toxicity threshold / Pseudomonas putida 6,500 mg/l
 Summary: Inhibition of cell multiplication begins.

Persistence and degradability : Biodegradation is expected.
Bioaccumulative potential : Bioaccumulation is unlikely.
Other adverse effects : BOD: 740-840 mg/g

Isopropyl Alcohol CAS 67-63-0

Ecotoxicity (aquatic and terrestrial, Where available) : LC50 / 96 Hours Pimephales promelas (fathead minnow): 9,640 mg/l
 Growth inhibition / 96 Hours Chlorella vulgaris (Fresh water algae) 1,000 mg/l
Toxicity to aquatic plants : EC50 / 72 Hours Scenedesmus subspectus > 1,000 mg/l
Toxicity to microorganisms : EC50 / 3 Hours Activated sludge > 1,000 mg/l
Persistence and degradability : Readily biodegradation (77% degraded in 10 days). Expected to be hydrolytically stable, but rapidly degraded following atmospheric releases.
Bioaccumulative potential : Bioconcentration factor (BCF) of 3.16. (Predicted bioconcentration factor). Significant bioaccumulation is not expected based on predicted BCF of 3.16.

13. Disposal Considerations

SPILL	<ul style="list-style-type: none"> • Contain spilled material. • Provide adequate ventilation. Provide adequate personnel protective equipment for responders. • Remove sources of heat, sparks or flames. • Spill should be collected in suitable containers or absorbed on a suitable absorbent material for subsequent disposal. Such containers used to contain spilled material and absorbent should be sealed off, otherwise the collected alcohol will evaporate from them.
WASTE DISPOSAL	<ul style="list-style-type: none"> • Waste material should be disposed of in a approved incinerator or in a designated landfill site, in compliance with all federal, provincial and local government regulations.

14. Transport Information

Canada: UN number: 1987

UN : UN number 1987
 UN : Proper shipping name Alcohols, N.O.S. (Isopropanol, Ethanol)
 UN : Class 3
 UN : Packing group II
 UN : Label



IMDG : Proper shipping name Alcohols, N.O.S. (Isopropanol, Ethanol)
 IMDG : Packing group II
 IMDG : Class 3
 IMDG : Marine pollutant No

IATA : Proper shipping name Alcohols, N.O.S. (Isopropanol, Ethanol)
 IATA : Packing group II
 IATA : Class 3

15. Regulatory Information

All ingredients are on the following inventories or are exempted from listing:

Country Notification

Australia	AICS
Canada	DSL
China	IECS
EU	EINECS
Japan	ENCS/ISHL
Korea	ECL
New Zealand	NZIoC
Philippines	PICCS
USA	TSCA

California Prop 65 Components

Warning! This product contains a chemical known to the State of California to cause birth defects or other reproductive harm when drunk as a beverage: (Ethyl Alcohol) CAS No. 64-17-5 Revision Date: December 11, 2009

16. Other Information

History

(please note that dates are in Canadian format [day/month/year])

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 Prepared by : Flexible Solutions Ltd.

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