Ethanol

32221-2.5L

SECTION 1. IDENTIFICATION

Product name	:	Ethanol
Number	:	000000020235
Product Use Description	:	Laboratory chemicals
Manufacturer or supplier's details	:	Honeywell International Inc. 1953 South Harvey Street Muskegon, MI 49442
For more information call	:	1-800-368-0050 +1-231-726-3171(Monday-Friday, 9:00am-5:00pm)
In case of emergency call	:	**Medical: 1-800-498-5701 or +1-303-389-1414**
	:	**Transportation (CHEMTREC): 1-800-424-9300 or +1-703-527-3887**
	:	
	:	(24 hours/day, 7 days/week)

SECTION 2. HAZARDS IDENTIFICATION

Emergency Overview

Form	:	liquid
Color	:	colourless
Odor	:	characteristic

Classification of the substance or mixture

Classification of the substance or mixture	:	Flammable liquids, Category 2 Eye irritation, Category 2A

GHS Label elements, including precautionary statements

Symbol(s) :



Signal word : Danger

Hazard statements : Highly flammable liquid and vapour.
Causes serious eye irritation.

Precautionary statements : **Prevention:**
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 skin thoroughly after handling.
Wear protective gloves/protective clothing/eye protection/face protection.

Response:
IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ 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 advice/ attention.
In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.

Storage:
Store in a well-ventilated place. Keep cool.

Disposal:
Dispose of contents/ container to an approved waste disposal plant.

Carcinogenicity

ACGIH:	Ethanol	64-17-5
	A3: Confirmed animal carcinogen	

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Formula : CH3CH2OH

Chemical nature : Substance

Chemical name	CAS-No.	Concentration
Ethanol	64-17-5	100.00 %

SECTION 4. FIRST AID MEASURES

Inhalation : Call a physician immediately. Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Use oxygen as required, provided a qualified operator is present.

Skin contact : Wash off immediately with plenty of water for at least 15 minutes. Take off contaminated clothing and shoes immediately. Wash contaminated clothing before re-use. Call a physician.

Eye contact : Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Call a physician.

Ingestion : Call a physician immediately. Do NOT induce vomiting. Immediate medical attention is required. Never give anything by mouth to an unconscious person.

Notes to physician

Indication of immediate medical attention and special treatment needed, if necessary : Treat symptomatically.

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media : Water spray

Alcohol-resistant foam
Carbon dioxide (CO2)
Dry chemical

Unsuitable extinguishing media	:	Do not use a solid water stream as it may scatter and spread fire.
Specific hazards during firefighting	:	Flammable. Vapours may form explosive mixtures with air. Vapours are heavier than air and may spread along floors. Vapors may travel to areas away from work site before igniting/flashing back to vapor source. In case of fire hazardous decomposition products may be produced such as: Carbon monoxide Carbon dioxide (CO2)
Special protective equipment for firefighters	:	Wear self-contained breathing apparatus and protective suit.
Further information	:	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Evacuate personnel to safe areas. Wear personal protective equipment. Unprotected persons must be kept away. Ensure adequate ventilation. Remove all sources of ignition.
Environmental precautions	:	Prevent further leakage or spillage if safe to do so. Discharge into the environment must be avoided. Do not flush into surface water or sanitary sewer system. Prevent product from entering drains. Do not allow run-off from fire fighting to enter drains or water courses.
Methods and materials for containment and cleaning up	:	Ventilate the area. Do not use sparking tools. Use explosion-proof equipment. Contain spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and

transfer to a container for disposal according to local / national regulations (see section 13).

SECTION 7. HANDLING AND STORAGE

Handling

Precautions for safe handling	:	Wear personal protective equipment. Use only in well-ventilated areas.
Advice on protection against fire and explosion	:	Keep product and empty container away from heat and sources of ignition. No smoking. Take precautionary measures against static discharges. Vapours may form explosive mixtures with air.

Storage

Conditions for safe storage, including any incompatibilities	:	Store in area designed for storage of flammable liquids. Protect from physical damage. Keep containers tightly closed in a dry, cool and well-ventilated place. Store in original container.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Protective measures	:	Ensure that eyewash stations and safety showers are close to the workstation location. Legal requirements are to be considered in regard of the selection, use and care of personal protective equipment. Avoid inhalation of vapour or mist.
Engineering measures	:	Use with local exhaust ventilation. Prevent vapour buildup by providing adequate ventilation during and after use.
Eye protection	:	Safety goggles
Hand protection	:	Impervious butyl rubber gloves Gloves must be inspected prior to use. Replace when worn.

Skin and body protection	:	Wear as appropriate: Solvent-resistant apron Flame retardant antistatic protective clothing. If splashes are likely to occur, wear: Protective suit
Respiratory protection	:	In case of insufficient ventilation wear suitable respiratory equipment.
Hygiene measures	:	When using, do not eat, drink or smoke. Keep working clothes separately. Remove and wash contaminated clothing before re-use. Wash thoroughly after handling.

Exposure Guidelines

Components	CAS-No.	Value	Control parameters	Update	Basis
Ethanol	64-17-5	STEL : Short term exposure limit	(1,000 ppm)	2009	ACGIH:US. ACGIH Threshold Limit Values, as amended
Ethanol	64-17-5	REL : Recommended exposure limit (REL):	1,900 mg/m3 (1,000 ppm)	2005	NIOSH/GUIDE:US. NIOSH: Pocket Guide to Chemical Hazards, as amended
Ethanol	64-17-5	PEL : Permissible exposure limit	1,900 mg/m3 (1,000 ppm)	02 2006	OSHA_TRANS:US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000), as amended
Ethanol	64-17-5	TWA : Time weighted average	1,900 mg/m3 (1,000 ppm)	1989	Z1A:US. OSHA Table Z-1-A (29 CFR 1910.1000), as amended

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state	:	liquid
Color	:	colourless
Odor	:	characteristic
pH	:	Note: no data available
Melting point/range	:	-115 °C
Boiling point/boiling range	:	78 - 79 °C at 1,013 hPa
Flash point	:	54 °F (12 °C) Method: DIN 51755
Lower explosion limit	:	3.4 %(V)
Upper explosion limit	:	15 %(V)
Vapor pressure	:	59 hPa at 20 °C(68 °F)
Density	:	0.790 - 0.791 g/cm3 at 20 °C
Water solubility	:	Note: completely miscible
Solubility in other solvents	:	Note: Soluble in most organic solvents
Partition coefficient: n-octanol/water	:	log Pow: -0.32
Ignition temperature	:	425 °C

Decomposition temperature	:	Note: At normal pressure may be distilled without decomposition., Fire or intense heat may cause violent rupture of packages.
Molecular weight	:	46 g/mol

SECTION 10. STABILITY AND REACTIVITY

Chemical stability	:	Stable under recommended storage conditions.
Possibility of hazardous reactions	:	Hazardous polymerisation does not occur.
Conditions to avoid	:	Heat, flames and sparks. Keep away from direct sunlight.
Incompatible materials	:	Strong oxidizing agents Potassium superoxide Bromine Pentafluoride Acetyl bromide Acetyl chloride Platinum Sodium
Hazardous decomposition products	:	In case of fire hazardous decomposition products may be produced such as: Carbon monoxide Carbon dioxide (CO2)

SECTION 11. TOXICOLOGICAL INFORMATION

Acute oral toxicity	:	LD50: 10,470 mg/kg Species: Rat Method: OECD Test Guideline 401

Acute inhalation toxicity	:	LC50: 124.7 mg/l Exposure time: 4 h Species: Rat Method: OECD Test Guideline 403
Acute dermal toxicity	:	Note: no data available
Skin irritation	:	Species: Rabbit Result: No skin irritation Method: OECD Test Guideline 404
Eye irritation	:	Species: Rabbit Result: Moderate eye irritation Method: OECD Test Guideline 405
Sensitisation	:	Species: Guinea pig Result: Did not cause sensitisation on laboratory animals. Method: OECD Test Guideline 406
Repeated dose toxicity	:	Species: Rat, male Application Route: Oral Exposure time: 90 d LOAEL (Lowest observed adverse effect level): 3,156 mg/kg Method: OECD 408
Genotoxicity in vitro	:	Test Method: Ames test Result: negative Method: OECD Test Guideline 471
	:	Test Method: In vitro gene mutation study in mammalian cells Result: negative Method: OECD Test Guideline 476
Genotoxicity in vivo	:	Test Method: Chromosome aberration test Method: OECD Test Guideline 478 Result: equivocal

Further information
Ethanol : Confirmed animal carcinogen with unknown relevance to humans.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity effects

Toxicity to fish : LC50: 14,200 mg/l
Exposure time: 96 h
Species: Pimephales promelas (fathead minnow)

: semi-static test
NOEC: 250 mg/l
Exposure time: 120 h
Species: Danio rerio (zebra fish)
Method: OECD Test Guideline 212

Toxicity to daphnia and other aquatic invertebrates : static test
LC50: 5,012 mg/l
Exposure time: 48 h
Species: Ceriodaphnia dubia (water flea)

Toxicity to algae : Growth rate
EC50: 275 mg/l
Exposure time: 3 d
Species: Chlorella vulgaris (Fresh water algae)
Method: OECD Test Guideline 201

: Growth rate
EC50: 675 mg/l
Exposure time: 4 d
Species: Chlorella vulgaris (Fresh water algae)
Method: OECD Test Guideline 201

: Biomass
EC50: 5,967 mg/l
Exposure time: 7 d
Species: Lemna gibba (gibbous duckweed)

: Biomass

NOEC: 5,967 mg/l
Exposure time: 7 d
Species: Lemna gibba (gibbous duckweed)

Toxicity to bacteria
Ethanol : LC0: 6,500 mg/l
Species: Pseudomonas putida

EC50: 35,470 mg/l
Exposure time: 5 min
Species: Photobacterium phosphoreum

EC50: 34,634 mg/l
Exposure time: 30 min
Species: Photobacterium phosphoreum

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : semi-static test
NOEC: 9.6 mg/l
Exposure time: 10 d
Species: Ceriodaphnia dubia (water flea)

semi-static test
LC50: 1,806 mg/l
Exposure time: 10 d
End point: Reproduction Test
Species: Ceriodaphnia dubia (water flea)

semi-static test
NOEC: 9.6 mg/l
Exposure time: 9 d
Species: Daphnia magna (Water flea)

semi-static test
LC50: 454 mg/l
Exposure time: 9 d
End point: Reproduction Test
Species: Daphnia magna (Water flea)

Elimination information (persistence and degradability)

Biodegradability : aerobic
Result: Readily biodegradable.
Value: 95 %

Further information on ecology

Ecotoxicology Assessment

Results of PBT assessment
This substance is not considered to be very persistent and very bioaccumulating (vPvB)., This substance is not considered to be persistent, bioaccumulating and toxic (PBT).

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods : Observe all Federal, State, and Local Environmental regulations.

SECTION 14. TRANSPORT INFORMATION

DOT

UN/ID No.	:	UN 1170
Proper shipping name	:	Ethanol
Class		3
Packing group		II
Hazard Labels		3

IATA

UN/ID No.	:	UN 1170
Description of the goods	:	Ethanol
Class	:	3
Packaging group	:	II
Hazard Labels	:	3
Packing instruction (cargo aircraft)	:	364
Packing instruction (passenger aircraft)	:	353
Packing instruction (passenger aircraft)	:	Y341

IMDG

UN/ID No.	:	UN 1170
Description of the goods	:	Ethanol
Class	:	3
Packaging group	:	II
Hazard Labels	:	3
EmS Number	:	F-E, S-D
Marine pollutant	:	no

SECTION 15. REGULATORY INFORMATION

Inventories

US. Toxic Substances Control Act	:	On TSCA Inventory
Australia. Industrial Chemical (Notification and Assessment) Act	:	On the inventory, or in compliance with the inventory
Canada. Canadian Environmental Protection Act (CEPA). Domestic Substances List (DSL)	:	All components of this product are on the Canadian DSL
Japan. Kashin-Hou Law List	:	On the inventory, or in compliance with the inventory
Korea. Existing Chemicals Inventory (KECI)	:	On the inventory, or in compliance with the inventory
Philippines. The Toxic Substances and Hazardous and Nuclear Waste Control Act	:	On the inventory, or in compliance with the inventory
China. Inventory of Existing Chemical Substances (IECSC)	:	On the inventory, or in compliance with the inventory
New Zealand. Inventory of Chemicals (NZIoC), as published by ERMA New Zealand	:	On the inventory, or in compliance with the inventory

National regulatory information

SARA 302 Components	:	No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.
SARA 313 Components	:	This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis)

reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards : Fire Hazard
Acute Health Hazard

California Prop. 65 : This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

Massachusetts RTK	:	Ethanol	64-17-5
New Jersey RTK	:	Ethanol	64-17-5
Pennsylvania RTK	:	Ethanol	64-17-5

SECTION 16. OTHER INFORMATION

		HMIS III	NFPA
Health hazard	:	1	2
Flammability	:	3	3
Physical Hazard	:	0	
Instability	:		0

Hazard rating and rating systems (e.g. HMIS® III, NFPA): This information is intended solely for the use of individuals trained in the particular system.

Further information

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text. Final determination of suitability of any material is the sole responsibility of the user. This information should not constitute a guarantee for any specific product properties.

Changes since the last version are highlighted in the margin. This version replaces all previous versions.

Previous Issue Date: 09/30/2016
Prepared by Honeywell Performance Materials and Technologies Product Stewardship Group