Fisher Scientific

Part of Thermo Fisher Scientific

SAFETY DATA SHEET

Creation Date 24-Jun-2008 **Revision Date** 26-Feb-2014 **Revision Number** 1

1. Identification

Product Name **Ethanol, CDA 19**

Cat No. : **A406P4, A40620, A406F1GAL**

Synonyms Completely Denatured Alcohol, Government Formula 19; CD-19 190 Alcohol (denatured with

Recommended Use Laboratory chemicals

Uses advised against No Information available

Details of the supplier of the safety data sheet

Company
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Emergency Telephone Number
CHEMTREC®, Inside the USA: 800-424-9300
CHEMTREC®, Outside the USA: 001-703-527-3887

2. Hazard(s) identification

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable liquids	Category 2
Serious Eye Damage/Eye Irritation	Category 2
Reproductive Toxicity	Category 1A
Specific target organ toxicity (single exposure)	Category 3
Target Organs - Central nervous system (CNS).	
Specific target organ toxicity - (repeated exposure)	Category 1
Target Organs - Kidney, Liver, spleen, Blood.	
Aspiration Toxicity	Category 1

Label Elements

Signal Word
Danger

Hazard Statements
Highly flammable liquid and vapor
Causes serious eye irritation
May damage the unborn child
May cause drowsiness or dizziness
Causes damage to organs through prolonged or repeated exposure
May be fatal if swallowed and enters airways

Precautionary Statements
Prevention
Do not breathe dust/fume/gas/mist/vapors/spray
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Use only outdoors or in a well-ventilated area
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
Wear protective gloves/protective clothing/eye protection/face protection
Keep cool
Response
IF exposed: Call a POISON CENTER or doctor/physician
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Call a POISON CENTER or doctor/physician if you feel unwell
Skin
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
Fire
In case of fire: Use CO2, dry chemical, or foam for extinction
Storage
Store locked up
Store in a well-ventilated place. Keep container tightly closed
Disposal
Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)
Repeated exposure may cause skin dryness or cracking

Other hazards
WARNING! This product contains a chemical known in the State of California to cause birth defects or other reproductive harm.

3. Composition / information on ingredients

Haz/Non-haz

Component	CAS-No	Weight %
Ethyl alcohol	64-17-5	92 - 93
Methylisobutyl ketone	108-10-1	3 - 4
Water	7732-18-5	< 1.0
Hexane	110-54-3	0.8
Toluene	108-88-3	0.08

4. First-aid measures

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Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. Get medical attention if symptoms occur..

Inhalation Move to fresh air. If breathing is difficult, give oxygen. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with a respiratory medical device. Obtain medical attention.

Ingestion Aspiration hazard. Do not induce vomiting. Call a physician or Poison Control Center immediately.

Most important symptoms/effects Breathing difficulties. Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting.

Notes to Physician Treat symptomatically.

5. Fire-fighting measures

Suitable Extinguishing Media Dry chemical, CO_2, water spray or alcohol-resistant foam..

Unsuitable Extinguishing Media Water may be ineffective, Do not use a solid water stream as it may scatter and spread fire

Flash Point 16.6°C / 61.8°F

Method - No information available.

Autoignition Temperature 363°C

Explosion Limits

Upper 19 vol %

Lower 3.3 vol %

Sensitivity to mechanical impact No information available.

Sensitivity to static discharge No information available.

Specific Hazards Arising from the Chemical

In the event of fire, cool tanks with water spray. Containers may explode when heated. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back.

Hazardous Combustion Products Carbon monoxide (CO), Carbon dioxide (CO_2).

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear

NFPA

Health	Flammability	Instability	Physical hazards
2	3	0	N/A

6. Accidental release measures

Personal Precautions Use personal protective equipment. Remove all sources of ignition. Ensure adequate ventilation.

Environmental Precautions Avoid release to the environment. See Section 12 for additional ecological Information.

Methods for Containment and Clean Up Remove all sources of ignition. Take precautionary measures against static discharges. Soak up with inert absorbent material. Sweep up and shovel into suitable containers for disposal. Use spark-proof tools and explosion-proof equipment.

7. Handling and storage

Handling Wear personal protective equipment. Keep away from open flames, hot surfaces and sources of ignition. Use spark-proof tools and explosion-proof equipment.. Avoid contact with skin and eyes. Do not breathe vapors or spray mist. Do not ingest.

Storage Keep container tightly closed in a dry and well-ventilated place. Keep away from open flames, hot surfaces and sources of ignition. Flammables area.

8. Exposure controls / personal protection

Exposure Guidelines

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
Methylisobutyl ketone	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: 500 ppm TWA: 50 ppm TWA: 205 mg/m^3 STEL: 75 ppm STEL: 300 mg/m^3
Hexane	TWA: 50 ppm STEL: 1000 ppm Skin	(Vacated) TWA: 50 ppm (Vacated) TWA: 180 mg/m^3 (Vacated) STEL: 1000 ppm (Vacated) STEL: 3600 mg/m^3 TWA: 500 ppm TWA: 1800 mg/m^3	IDLH: 1100 ppm TWA: 50 ppm TWA: 180 mg/m^3 Ceiling: 510 ppm Ceiling: 1800 mg/m^3
Toluene	TWA: 20 ppm	(Vacated) TWA: 100 ppm (Vacated) TWA: 375 mg/m^3 Ceiling: 300 ppm (Vacated) STEL: 150 ppm (Vacated) STEL: 560 mg/m^3 TWA: 200 ppm	IDLH: 500 ppm TWA: 100 ppm TWA: 375 mg/m^3 STEL: 150 ppm STEL: 560 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
Methylisobutyl ketone	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: 50 ppm STEL: 75 ppm
Hexane	TWA: 50 ppm TWA: 176 mg/m^3 STEL: 1000 ppm STEL: 3500 mg/m^3 Skin	TWA: 50 ppm TWA: 176 mg/m^3 STEL: 1000 ppm STEL: 3500 mg/m^3	TWA: 50 ppm STEL: 1000 ppm Skin
Toluene	TWA: 50 ppm TWA: 188 mg/m^3 Skin	TWA: 50 ppm TWA: 188 mg/m^3	TWA: 20 ppm

Legend
ACGIH *- American Conference of Industrial Hygiene*
OSHA *- Occupational Safety and Health Administration*
NIOSH IDLH: *Immediately Dangerous to Life or Health*

Engineering Measures Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location. Use spark-proof tools and explosion-proof equipment..

Personal Protective Equipment

Eye/face 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

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure

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 EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice

9. Physical and chemical properties

Physical State	Liquid
Appearance	Clear
Odor	Alcohol-like
Odor Threshold	No information available.
pH	No information available.
Melting Point/Range	<-85°C
Boiling Point/Range	79°C@ 760 mmHg
Flash Point	16.6°C / 61.8°F
Evaporation Rate	3.8 (Butyl Acetate = 1.0)
Flammability (solid,gas)	No information available.
Flammability or explosive limits	
Upper	19 vol %
Lower	3.3 vol %
Vapor Pressure	50 mmHg @ 20 °C
Vapor Density	1.6 (Air = 1.0)
Relative Density	0.813
Solubility	Soluble in water
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	363°C
Decomposition temperature	No information available.
Viscosity	No information available.

10. Stability and reactivity

Reactive Hazard None known, based on information available.

Stability Stable under normal conditions.

Conditions to Avoid Keep away from open flames, hot surfaces and sources of ignition. Incompatible products.

Incompatible Materials Strong oxidizing agents, Peroxides, Acids, Acid anhydrides, Acid chlorides

Hazardous Decomposition Products Carbon monoxide (CO), Carbon dioxide (CO_2)

Hazardous Polymerization Hazardous polymerization does not occur

Hazardous Reactions None under normal processing

11. Toxicological information

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Acute Toxicity

Product Information No acute toxicity information is available for this product
Oral LD50 Based on ATE data, the classification criteria are not met. ATE > 2000 mg/kg.
Dermal LD50 Based on ATE data, the classification criteria are not met. ATE > 2000 mg/kg.
Vapor LC50 Based on ATE data, the classification criteria are not met. ATE > 20 mg/l.

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Ethyl alcohol	7060 mg/kg (Rat)	Not listed	20000 ppm/10H (Rat)
Methylisobutyl ketone	2080 mg/kg (Rat)	16000 mg/kg (Rabbit)	8.2 mg/L (Rat) 4 h
Hexane	25 g/kg (Rat)	3000 mg/kg (Rabbit)	48000 ppm (Rat) 4 h
Toluene	> 5000 mg/kg (Rat)	12124 mg/kg (Rat) 8390 mg/kg (Rabbit)	26700 ppm (Rat) 1 h

Toxicologically Synergistic Products No information available.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation Severe eye irritant

Sensitization No information available.

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Ethyl alcohol	64-17-5	Group 1	Not listed	A3	X	Not listed
Methylisobutyl ketone	108-10-1	Not listed	Not listed	A3	Not listed	Not listed
Water	7732-18-5	Not listed	Not listed	Not listed	Not listed	Not listed
Hexane	110-54-3	Not listed	Not listed	Not listed	Not listed	Not listed
Toluene	108-88-3	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects No information available.

Reproductive Effects Adverse reproductive effects have occurred in humans..

Developmental Effects Component substance is listed on California Proposition 65 as a developmental hazard.

Teratogenicity No information available.

STOT - single exposure Central nervous system (CNS).

STOT - repeated exposure Kidney, Liver, spleen, Blood.

Aspiration hazard No information available.

Symptoms / effects, both acute and delayed Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting.

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity

Do not empty into drains

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Ethyl alcohol	EC50 (72h) = 275 mg/l (Chlorella vulgaris)	Fathead minnow (Pimephales promelas) LC50 = 14200 mg/l/96h	Photobacterium phosphoreum:EC50 = 34634 mg/L/30 min Photobacterium phosphoreum:EC50 = 35470 mg/L/5 min	EC50 = 9268 mg/L/48h EC50 = 10800 mg/L/24h
Methylisobutyl ketone	EC50: 400 mg/L/96h	496-514 mg/L LC50 96 h	EC50 = 79.6 mg/L 5 min	EC50: 4280.0 mg/L/24h EC50: 170 mg/L/48h EC50: 4280.0 mg/L/24h
Hexane	Not listed	2.1-2.98 mg/L LC50 96 h	Not listed	EC50: 3.87 mg/L/48h
Toluene	433 mg/L EC50 > 96 h 12.5 mg/L EC50 = 72 h	50-70 mg/L LC50 96 h 5-7 mg/L LC50 96 h 15-19 mg/L LC50 96 h 28 mg/L LC50 96 h 12 mg/L LC50 96 h	EC50 = 19.7 mg/L 30 min	11.5 mg/L EC50 = 48 h 5.46 - 9.83 mg/L EC50 48 h

Persistence and Degradability No information available.

Bioaccumulation/ Accumulation No information available

Mobility .

Component	log Pow
Ethyl alcohol	-0.32
Methylisobutyl ketone	1.19
Hexane	4.11
Toluene	2.65

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification

Component	RCRA - U Series Wastes	RCRA - P Series Wastes
Methylisobutyl ketone - 108-10-1	U161	-
Toluene - 108-88-3	U220	-

14. Transport information

DOT

UN-No UN1170
Proper Shipping Name ETHANOL SOLUTION
Hazard Class 3
Packing Group II

TDG

UN-No UN1170
Proper Shipping Name ETHANOL SOLUTION
Hazard Class 3
Packing Group II

IATA

UN-No UN1170
Proper Shipping Name ETHANOL SOLUTION
Hazard Class 3
Packing Group II

IMDG/IMO

UN-No UN1170

14. Transport information

Proper Shipping Name ETHANOL SOLUTION
Hazard Class 3
Packing Group II

15. Regulatory information

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	CHINA	KECL
Ethyl alcohol	X	X	-	200-578-6	-		X	X	X	X	X
Methylisobutyl ketone	X	X	-	203-550-1	-		X	X	X	X	X
Water	X	X	-	231-791-2	-		X	-	X	X	X
Hexane	X	X	-	203-777-6	-		X	X	X	X	X
Toluene	X	X	-	203-625-9	-		X	X	X	X	X

Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Methylisobutyl ketone	108-10-1	3 - 4	1.0
Hexane	110-54-3	0.8	1.0
Toluene	108-88-3	0.08	1.0

SARA 311/312 Hazardous Categorization

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

Clean Water Act

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Water	-	1 LB	-	-
Toluene	X	1000 lb	X	X

Clean Air Act

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Methylisobutyl ketone	X		-
Hexane	X		-
Toluene	X		-

OSHA Occupational Safety and Health Administration
OSHA - Occupational Safety and Health Administration

CERCLA

Component	Hazardous Substances RQs	CERCLA EHS RQs
Methylisobutyl ketone	5000 lb	-
Hexane	5000 lb	-
Toluene	1000 lb	-

California Proposition 65 This product contains the following Proposition 65 chemicals: Ethyl alcohol is only a considered a Proposition 65 developmental hazard when it is ingested as an alcoholic beverage.

Component	CAS-No	California Prop. 65	Prop 65 NSRL
Ethyl alcohol	64-17-5	Developmental	-
Toluene	108-88-3	Developmental Female Reproductive	-

State Right-to-Know

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Ethyl alcohol	X	X	X	-	X
Methylisobutyl ketone	X	X	X	X	X
Hexane	X	X	X	X	X
Toluene	X	X	X	X	X

U.S. Department of Transportation
Reportable Quantity (RQ): N
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

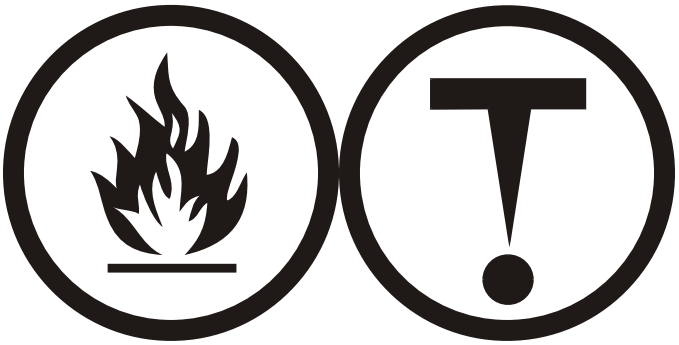
U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

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

WHMIS Hazard Class B2 Flammable liquid
D2A Very toxic materials
D2B Toxic materials



16. Other information

Prepared By	Regulatory Affairs Thermo Fisher Scientific Email: EMSDS.RA@thermofisher.com
Creation Date	24-Jun-2008
Revision Date	26-Feb-2014
Print Date	26-Feb-2014
Revision Summary	This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer

The information provided on 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 guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as 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 material or in any process, unless specified in the text.

End of SDS