

Material Safety Data Sheet

1,3-Propanediol

ACC# 29164

Section 1 - Chemical Product and Company Identification

MSDS Name: 1,3-Propanediol

Catalog Numbers: AC131400000, AC131400010, AC131400025, AC131401000, AC131402500, AC131405000 AC131405000

Synonyms: Trimethylene glycol.

Company Identification:

Acros Organics N.V.

One Reagent Lane

Fair Lawn, NJ 07410

For information in North America, call: 800-ACROS-01

For emergencies in the US, call CHEMTREC: 800-424-9300

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
504-63-2	1,3-Propanediol	98	207-997-3

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: APHA: 20 max clear liquid.

Caution! May cause eye, skin, and respiratory tract irritation. Hygroscopic (absorbs moisture from the air). The toxicological properties of this material have not been fully investigated.

Target Organs: None known.

Potential Health Effects

Eye: May cause eye irritation.

Skin: May cause skin irritation. May be harmful if absorbed through the skin.

Ingestion: May cause irritation of the digestive tract. May be harmful if swallowed. Ingestion may cause headache, nausea, and vomiting.

Inhalation: May cause respiratory tract irritation. May be harmful if inhaled.

Chronic: No information found.

Section 4 - First Aid Measures

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. If irritation develops, get medical aid.

Skin: Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid if irritation develops or persists.

Ingestion: Do not induce vomiting. Get medical aid if irritation or symptoms occur.

Inhalation: Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid if cough or other symptoms appear.

Notes to Physician: Treat symptomatically and supportively.

Section 5 - Fire Fighting Measures

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

Extinguishing Media: Use water spray, dry chemical, carbon dioxide, or chemical foam.

Flash Point: 140 deg C (284.00 deg F)

Autoignition Temperature: 405 deg C (761.00 deg F)

Explosion Limits, Lower:Not available.

Upper: Not available.

NFPA Rating: (estimated) Health: 1; Flammability: 1; Instability: 0

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks: Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Provide ventilation. Do not let this chemical enter the environment.

Section 7 - Handling and Storage

Handling: Use with adequate ventilation. Avoid contact with eyes, skin, and clothing. Avoid ingestion and inhalation.

Storage: Store in a cool, dry place. Store in a tightly closed container.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
1,3-Propanediol	none listed	none listed	none listed

OSHA Vacated PELs: 1,3-Propanediol: No OSHA Vacated PELs are listed for this chemical.

Personal Protective Equipment

Eyes: 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: Wear appropriate protective gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respirators: 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.

Section 9 - Physical and Chemical Properties

Physical State: Clear liquid

Appearance: APHA: 20 max

Odor: Not available.

pH: 4.5 - 7.0 (10% aq.sol.)

Vapor Pressure: < 0.1 mbar @ 20 deg C

Vapor Density: Not available.

Evaporation Rate: Not available.

Viscosity: 52.7 mPas @ 20 deg C

Boiling Point: 214 deg C @ 760 mmHg

Freezing/Melting Point: -32 deg C

Decomposition Temperature: Not available.

Solubility: 100 g/L

Specific Gravity/Density: 1.052

Molecular Formula: C₃H₈O₂

Molecular Weight: 76.09

Section 10 - Stability and Reactivity

Chemical Stability: Hygroscopic: absorbs moisture or water from the air.
Conditions to Avoid: Incompatible materials, excess heat, exposure to moist air or water.
Incompatibilities with Other Materials: Strong oxidizing agents, reducing agents, acid chlorides, acid anhydrides, chloroformates.
Hazardous Decomposition Products: Carbon monoxide, carbon dioxide.
Hazardous Polymerization: Has not been reported.

Section 11 - Toxicological Information

RTECS#:
CAS# 504-63-2: TY2010000
LD50/LC50:
CAS# 504-63-2:
Oral, mouse: LD50 = 4500 mg/kg;

Carcinogenicity:
CAS# 504-63-2: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

Epidemiology: No information available.
Teratogenicity: No information available.
Reproductive Effects: No information available.
Mutagenicity: No information available.
Neurotoxicity: No information available.
Other Studies:

Section 12 - Ecological Information

Ecotoxicity: No data available. No information available.
Environmental: No information available.
Physical: No information available.
Other: Do not empty into drains.

Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

RCRA P-Series: None listed.
RCRA U-Series: None listed.

Section 14 - Transport Information

	US DOT	Canada TDG
Shipping Name:	Not regulated.	Not regulated.
Hazard Class:		
UN Number:		
Packing Group:		

Section 15 - Regulatory Information

US FEDERAL

TSCA

CAS# 504-63-2 is listed on the TSCA inventory.

Health & Safety Reporting List

None of the chemicals are on the Health & Safety Reporting List.

Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

Section 12b

None of the chemicals are listed under TSCA Section 12b.

TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

CERCLA Hazardous Substances and corresponding RQs

None of the chemicals in this material have an RQ.

SARA Section 302 Extremely Hazardous Substances

None of the chemicals in this product have a TPQ.

SARA Codes

CAS # 504-63-2: fire.

Section 313 No chemicals are reportable under Section 313.

Clean Air Act:

This material does not contain any hazardous air pollutants.

This material does not contain any Class 1 Ozone depletors.

This material does not contain any Class 2 Ozone depletors.

Clean Water Act:

None of the chemicals in this product are listed as Hazardous Substances under the CWA.

None of the chemicals in this product are listed as Priority Pollutants under the CWA.

None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.

STATE

CAS# 504-63-2 is not present on state lists from CA, PA, MN, MA, FL, or NJ.

California Prop 65

California No Significant Risk Level: None of the chemicals in this product are listed.

European/International Regulations**European Labeling in Accordance with EC Directives****Hazard Symbols:**

Not available.

Risk Phrases:**Safety Phrases:**

S 24/25 Avoid contact with skin and eyes.

WGK (Water Danger/Protection)

CAS# 504-63-2: 0

Canada - DSL/NDSL

CAS# 504-63-2 is listed on Canada's DSL List.

Canada - WHMIS

not available.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

Canadian Ingredient Disclosure List

Material Safety Data Sheet

1-Butanol

ACC# 96285

Section 1 - Chemical Product and Company Identification

MSDS Name: 1-Butanol

Catalog Numbers: AC107690000, AC107690010, AC107690025, AC167690000, AC167691000, AC167695000 AC167695000, AC232080000, AC232080010, AC232080025, AC393750000, AC423490000 AC423490000, AC423490010, AC423495000

Synonyms: n-Butyl alcohol; n-Butanol

Company Identification:

Acros Organics N.V.

One Reagent Lane

Fair Lawn, NJ 07410

For information in North America, call: 800-ACROS-01

For emergencies in the US, call CHEMTREC: 800-424-9300

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
71-36-3	1-Butanol	>99%	200-751-6

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Not available. Appearance: colorless clear liquid. Flash Point: 35 deg C.

Not available.

Target Organs: Blood, kidneys, central nervous system, liver, respiratory system, eyes, skin.

Potential Health Effects

Eye: May result in corneal injury. May cause eye irritation and possible damage. Risk of serious damage to eyes. Vapors appear to cause a special vacuolar keratopathy in humans.

Skin: Causes skin irritation. May be absorbed through the skin in harmful amounts. Prolonged and/or repeated contact may cause defatting of the skin and dermatitis. Although n-butanol can enter the circulation after topical application, the absorbed dose is insignificant compared to that from other routes.

Ingestion: Harmful if swallowed. Aspiration hazard. May cause irritation of the digestive tract. May cause liver damage. Aspiration of material into the lungs may cause chemical

pneumonitis, which may be fatal.

Inhalation: May cause respiratory tract irritation. May be harmful if inhaled. Inhalation of vapors may cause drowsiness and dizziness. Exposure causes central nervous system depression with possible headache, dizziness, and drowsiness. May cause lung hemorrhage, blood disturbances, and liver and kidney

Chronic: Not available. Repeated eye exposure may cause visual abnormalities including blurred vision and photosensitivity. Repeated exposure in combination with constant, loud noise can produce hearing loss and vertigo.

Section 4 - First Aid Measures

Eyes: Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.

Skin: Get medical aid. Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.

Ingestion: Get medical aid. Wash mouth out with water.

Inhalation: Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

Notes to Physician: Treat symptomatically and supportively.

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Vapors can travel to a source of ignition and flash back. Will burn if involved in a fire. Flammable Liquid. Can release vapors that form explosive mixtures at temperatures above the flashpoint. Use water spray to keep fire-exposed containers cool. Flammable liquid and vapor.

Extinguishing Media: Use water spray, dry chemical, carbon dioxide, or chemical foam.

Flash Point: 35 deg C (95.00 deg F)

Autoignition Temperature: 340 deg C (644.00 deg F)

Explosion Limits, Lower: 1.4 Vol %

Upper: 11.2 Vol %

NFPA Rating: (estimated) Health: 2; Flammability: 3; Instability: 0

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks: Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Remove all sources of ignition. Use a spark-proof tool. Do not let this chemical enter the environment.

Section 7 - Handling and Storage

Handling: Use spark-proof tools and explosion proof equipment. Avoid breathing dust, mist, or vapor. Avoid contact with skin and eyes. Avoid ingestion and inhalation. Use only in a chemical fume hood.

Storage: Keep away from sources of ignition. Store in a cool, dry place. Store in a tightly closed container. Flammables-area.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local explosion-proof ventilation to keep airborne levels to acceptable levels.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
1-Butanol	20 ppm TWA	1400 ppm IDLH	100 ppm TWA; 300 mg/m ³ TWA

OSHA Vacated PELs: 1-Butanol: No OSHA Vacated PELs are listed for this chemical.

Personal Protective Equipment

Eyes: Wear chemical splash goggles.

Skin: Wear appropriate protective gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respirators: 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.

Section 9 - Physical and Chemical Properties

Physical State: Clear liquid

Appearance: colorless

Odor: banana-like - sweetish odor

pH: Not available.

Vapor Pressure: 6.7mbar @20 deg C

Vapor Density: 2.6 (Air=1)

Evaporation Rate:0.46 (Butyl acetate=1)

Viscosity: 2.95 mPa.s @20 deg C

Boiling Point: 117.6 deg C @760mmHg

Freezing/Melting Point:-89 deg C
Decomposition Temperature:Not available.
Solubility: 80 g/l (20°C)
Specific Gravity/Density:0.810
Molecular Formula:C4H10O
Molecular Weight:74.12

Section 10 - Stability and Reactivity

Chemical Stability: Stable at room temperature in closed containers under normal storage and handling conditions.

Conditions to Avoid: High temperatures, incompatible materials, ignition sources.

Incompatibilities with Other Materials: Strong oxidizing agents, aluminum, organic peroxides, chromium trioxide, reducing agents, acid chlorides, copper, copper alloys, acid anhydrides.

Hazardous Decomposition Products: Carbon monoxide, carbon dioxide.

Hazardous Polymerization: Will not occur.

Section 11 - Toxicological Information

RTECS#:

CAS# 71-36-3: E01400000

LD50/LC50:

CAS# 71-36-3:

Draize test, rabbit, eye: 2 mg Severe;

Draize test, rabbit, eye: 2 mg/24H Severe;

Draize test, rabbit, skin: 405 mg/24H Moderate;

Draize test, rabbit, skin: 20 mg/24H Moderate;

Inhalation, rat: LC50 = 8000 ppm/4H;

Inhalation, rat: LC50 = 24000 mg/m³/4H;

Oral, mouse: LD50 = 100 mg/kg;

Oral, rabbit: LD50 = 3484 mg/kg;

Oral, rabbit: LD50 = 3400 mg/kg;

Oral, rat: LD50 = 790 mg/kg;

Oral, rat: LD50 = 800 mg/kg;

Skin, rabbit: LD50 = 3400 mg/kg;

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Carcinogenicity:

CAS# 71-36-3: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

Epidemiology: No data available.

Teratogenicity: No data available.

Reproductive Effects: No data available.

Mutagenicity: No data available.

Neurotoxicity: No data available.

Other Studies:

Section 12 - Ecological Information

Ecotoxicity: No data available. Log Pow: 0.9

Environmental: No information available.

Physical: No information available.

Other: Do not empty into drains.

Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

RCRA P-Series: None listed.

RCRA U-Series:

CAS# 71-36-3: waste number U031 (Ignitable waste).

Section 14 - Transport Information

	US DOT	Canada TDG
Shipping Name:	BUTANOLS	BUTANOLS
Hazard Class:	3	3
UN Number:	UN1120	UN1120
Packing Group:	III	III

Section 15 - Regulatory Information

US FEDERAL

TSCA

CAS# 71-36-3 is listed on the TSCA inventory.

Health & Safety Reporting List

None of the chemicals are on the Health & Safety Reporting List.

Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

Section 12b

None of the chemicals are listed under TSCA Section 12b.

TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

CERCLA Hazardous Substances and corresponding RQs

CAS# 71-36-3: 5000 lb final RQ; 2270 kg final RQ

SARA Section 302 Extremely Hazardous Substances

None of the chemicals in this product have a TPQ.

SARA Codes

CAS # 71-36-3: immediate, fire.

Section 313

This material contains 1-Butanol (CAS# 71-36-3, >99%), which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

Clean Air Act:

This material does not contain any hazardous air pollutants.

This material does not contain any Class 1 Ozone depletors.

This material does not contain any Class 2 Ozone depletors.

Clean Water Act:

None of the chemicals in this product are listed as Hazardous Substances under the CWA.

None of the chemicals in this product are listed as Priority Pollutants under the CWA.

None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.

STATE

CAS# 71-36-3 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

California Prop 65

California No Significant Risk Level: None of the chemicals in this product are listed.

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols:

XN

Risk Phrases:

R 10 Flammable.

R 22 Harmful if swallowed.

R 37/38 Irritating to respiratory system and skin.

R 41 Risk of serious damage to eyes.

R 67 Vapours may cause drowsiness and dizziness.

Safety Phrases:

S 13 Keep away from food, drink and animal feeding stuffs.

S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S 37/39 Wear suitable gloves and eye/face protection.

S 46 If swallowed, seek medical advice immediately and show this container or label.

S 7/9 Keep container tightly closed and in a well-ventilated place.

WGK (Water Danger/Protection)

CAS# 71-36-3: 1

Canada - DSL/NDSL

CAS# 71-36-3 is listed on Canada's DSL List.

Canada - WHMIS

not available.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

Canadian Ingredient Disclosure List

CAS# 71-36-3 is listed on the Canadian Ingredient Disclosure List.

Material Safety Data Sheet

2-Heptanone, 98%

ACC# 02509

Section 1 - Chemical Product and Company Identification

MSDS Name: 2-Heptanone, 98%

Catalog Numbers: AC154000000, AC154000010, AC154000050, AC154000051, AC154001000, 15400-2500

Synonyms: Methyl amyl ketone.

Company Identification:

Fisher Scientific

1 Reagent Lane

Fair Lawn, NJ 07410

For information, call: 201-796-7100

Emergency Number: 201-796-7100

For CHEMTREC assistance, call: 800-424-9300

For International CHEMTREC assistance, call: 703-527-3887

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
110-43-0	2-Heptanone	98	203-767-1

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: colorless liquid. Flash Point: 47 deg C.

Warning! Flammable liquid and vapor. May cause eye, skin, and respiratory tract irritation.

Target Organs: No data found.

Potential Health Effects

Eye: May cause eye irritation.

Skin: May cause skin irritation.

Ingestion: Ingestion of large amounts may cause gastrointestinal irritation.

Inhalation: May cause respiratory tract irritation. Vapors may cause dizziness or

suffocation.

Chronic: Not available.

Section 4 - First Aid Measures

Eyes: Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid immediately.

Skin: Get medical aid. Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Remove contaminated clothing and shoes.

Ingestion: If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately.

Inhalation: Get medical aid immediately. Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.

Notes to Physician: Treat symptomatically and supportively.

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Vapors may form an explosive mixture with air. Vapors can travel to a source of ignition and flash back. Will burn if involved in a fire. Use water spray to keep fire-exposed containers cool. Containers may explode in the heat of a fire. Flammable liquid and vapor. Vapors may be heavier than air. They can spread along the ground and collect in low or confined areas.

Extinguishing Media: For small fires, use dry chemical, carbon dioxide, water spray or alcohol-resistant foam. For large fires, use water spray, fog, or alcohol-resistant foam. In case of fire, use water, dry chemical, chemical foam, or alcohol-resistant foam. Use water spray to cool fire-exposed containers. Water may be ineffective. Use agent most appropriate to extinguish fire. Do NOT use straight streams of water.

Flash Point: 47 deg C (116.60 deg F)

Autoignition Temperature: 532 deg C (989.60 deg F)

Explosion Limits, Lower:Not available.

Upper: Not available.

NFPA Rating: (estimated) Health: 1; Flammability: 2; Instability: 0

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks: Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Clean up spills immediately, observing precautions in the Protective Equipment section. Remove all sources of ignition. Use a spark-proof tool. Provide ventilation. A vapor suppressing foam may be used to reduce vapors.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Use only in a well-ventilated area. Ground and bond containers when transferring material. Use spark-proof tools and explosion proof equipment. Avoid contact with eyes, skin, and clothing. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep away from heat, sparks and flame. Avoid ingestion and inhalation. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames.

Storage: Keep away from heat, sparks, and flame. Keep away from sources of ignition. Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. Flammables-area.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
2-Heptanone	50 ppm TWA	100 ppm TWA; 465 mg/m ³ TWA 800 ppm IDLH	100 ppm TWA; 465 mg/m ³ TWA

OSHA Vacated PELs: 2-Heptanone: 100 ppm TWA; 465 mg/m³ TWA

Personal Protective Equipment

Eyes: 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: Wear appropriate protective gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respirators: 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.

Section 9 - Physical and Chemical Properties

Physical State: Liquid

Appearance: colorless

Odor: penetrating odor - fruity odor

pH: Not available.

Vapor Pressure: 2.6 mmHg @ 20 C
Vapor Density: 3.9
Evaporation Rate: Not available.
Viscosity: Not available.
Boiling Point: 149.0 - 150.0 deg C @ 760.00m
Freezing/Melting Point: -35 deg C
Decomposition Temperature: Not available.
Solubility: 4.3 g/l (20 c)
Specific Gravity/Density: .8200g/cm3
Molecular Formula: C7H14O
Molecular Weight: 114.19

Section 10 - Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures.
Conditions to Avoid: Incompatible materials, ignition sources, excess heat, strong oxidants, electrical sparks, exposure to flame.
Incompatibilities with Other Materials: Strong oxidizing agents, strong acids, bases.
Hazardous Decomposition Products: Carbon monoxide, carbon monoxide, carbon dioxide.
Hazardous Polymerization: Has not been reported.

Section 11 - Toxicological Information

RTECS#:
CAS# 110-43-0: MJ5075000
LD50/LC50:
CAS# 110-43-0:
Oral, mouse: LD50 = 730 mg/kg;
Oral, rat: LD50 = 1670 mg/kg;
Skin, rabbit: LD50 = 12600 uL/kg;

Carcinogenicity:
CAS# 110-43-0: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

Epidemiology: No information found
Teratogenicity: No information found
Reproductive Effects: No information found
Mutagenicity: No information found
Neurotoxicity: No information found
Other Studies:

Section 12 - Ecological Information

Ecotoxicity: Fish: Fathead Minnow: LC50 = 131.0 mg/L; 96 Hr.; Flow-through Bioassay No data available.

Environmental: If released to soil, calculated soil adsorption coefficients ranging from 44-285 indicate that 2-heptanone may display moderate to high mobility and it has the potential to leach into groundwater. Heptanone has the potential to biodegrade in soil. If released to water, 2-heptanone is expected to rapidly volatilize to the atmosphere. The half-life for volatilization from a model river 1 m deep, flowing at 1 m/sec with a wind speed of 3 m/sec is 8.4hr.

Physical: If released to the atmosphere, 2-heptanone is expected to undergo a gas-phase reaction with photochemically produced hydroxyl radicals; the estimated half-life for this process is 1.9days. 2-Heptanone's relatively high water solubility, 4300 mg/l at 25 deg C, indicates that it may undergo atmospheric removal by wet deposition processes.

Other: 2-Heptanone had a theoretical biological oxygen demand (BOD) of 1.4%, 2.4% and 4.8% after 6, 12 and 24 hr, respectively, when incubated with a activated sludge seed at an initial concentration of 500 ppm. 2-Heptanone underwent a 5 day theoretical BOD of 44%. In a screening study using a sewage seed, 2-heptanone had a 10 day BOD of 0.50 g/g.

Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

RCRA P-Series: None listed.

RCRA U-Series: None listed.

Section 14 - Transport Information

	US DOT	Canada TDG
Shipping Name:	N-AMYL METHYL KETONE	No information available.
Hazard Class:	3	
UN Number:	UN1110	
Packing Group:	III	

Section 15 - Regulatory Information

US FEDERAL

TSCA

CAS# 110-43-0 is listed on the TSCA inventory.

Health & Safety Reporting List

None of the chemicals are on the Health & Safety Reporting List.

Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

Section 12b

None of the chemicals are listed under TSCA Section 12b.

TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

CERCLA Hazardous Substances and corresponding RQs

None of the chemicals in this material have an RQ.

SARA Section 302 Extremely Hazardous Substances

None of the chemicals in this product have a TPQ.

SARA Codes

CAS # 110-43-0: immediate, fire, reactive.

Section 313 No chemicals are reportable under Section 313.

Clean Air Act:

This material does not contain any hazardous air pollutants.

This material does not contain any Class 1 Ozone depleters.

This material does not contain any Class 2 Ozone depleters.

Clean Water Act:

None of the chemicals in this product are listed as Hazardous Substances under the CWA.

None of the chemicals in this product are listed as Priority Pollutants under the CWA.

None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.

STATE

CAS# 110-43-0 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

California Prop 65

California No Significant Risk Level: None of the chemicals in this product are listed.

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols:

XN

Risk Phrases:

R 10 Flammable.

R 22 Harmful if swallowed.

Safety Phrases:

S 16 Keep away from sources of ignition - No smoking.

S 23 Do not inhale gas/fumes/vapour/spray.

S 33 Take precautionary measures against static discharges.

S 9 Keep container in a well-ventilated place.

WGK (Water Danger/Protection)

CAS# 110-43-0: 1

Canada - DSL/NDSL

CAS# 110-43-0 is listed on Canada's DSL List.

Canada - WHMIS

This product has a WHMIS classification of B3, D2B.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

Canadian Ingredient Disclosure List

CAS# 110-43-0 is listed on the Canadian Ingredient Disclosure List.

Material Safety Data Sheet

Acetic anhydride, 99+%

ACC# 95842

Section 1 - Chemical Product and Company Identification

MSDS Name: Acetic anhydride, 99+%

Catalog Numbers: AC149490000, AC149490010, AC149490025, AC149490200, AC149490250

Synonyms: Acetic oxide; Acetyl oxide; Ethanoic anhydride; Acetic acid anhydride.

Company Identification:

Acros Organics N.V.

One Reagent Lane

Fair Lawn, NJ 07410

For information in North America, call: 800-ACROS-01

For emergencies in the US, call CHEMTREC: 800-424-9300

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
108-24-7	Acetic anhydride	99.0+	203-564-8

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: colorless liquid. Flash Point: 126 deg F.

Danger! Corrosive. Causes digestive and respiratory tract burns. Causes eye and skin burns. **Flammable liquid and vapor.** Harmful if inhaled. May be harmful if swallowed. May cause central nervous system depression. Moisture sensitive.

Target Organs: Central nervous system.

Potential Health Effects

Eye: Eye damage may be delayed. Contact with liquid is corrosive to the eyes and causes severe burns. When substance becomes wet or comes in contact with moisture of the mucous membranes, it will cause irritation. May cause chemical conjunctivitis and corneal damage.

Skin: Contact with skin causes irritation and possible burns, especially if the skin is wet or moist. Prolonged skin contact may be painless with reddening of the skin followed by a white appearance of the skin. Skin burns may be delayed. May cause cyanosis of the extremities. May cause skin rash (in milder cases), and cold and clammy skin with cyanosis

or pale color.

Ingestion: May cause severe and permanent damage to the digestive tract. Causes gastrointestinal tract burns. May cause perforation of the digestive tract. May be harmful if swallowed. Ingestion of large amounts may cause CNS depression. May cause systemic effects.

Inhalation: Harmful if inhaled. Causes severe irritation of upper respiratory tract with coughing, burns, breathing difficulty, and possible coma. Causes chemical burns to the respiratory tract. May cause lung damage. Aspiration may lead to pulmonary edema. Vapors may cause dizziness or suffocation. May cause systemic effects. May cause burning sensation in the chest.

Chronic: Effects may be delayed. Prolonged skin contact may be painless and cause redness and subsequently a white appearance of the skin accompanied by wrinkling. Skin burns may be

Section 4 - First Aid Measures

Eyes: Get medical aid immediately. Do NOT allow victim to rub eyes or keep eyes closed. Extensive irrigation with water is required (at least 30 minutes).

Skin: Get medical aid. Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Discard contaminated clothing in a manner which limits further exposure. If water-reactive products are embedded in the skin, no water should be applied. The embedded products should be covered with a light oil.

Ingestion: Do not induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately.

Inhalation: Get medical aid immediately. Remove from exposure and move to fresh air immediately. If breathing is difficult, give oxygen. Do NOT use mouth-to-mouth resuscitation. If breathing has ceased apply artificial respiration using oxygen and a suitable mechanical device such as a bag and a mask.

Notes to Physician: Treat symptomatically and supportively.

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Vapors may form an explosive mixture with air. Vapors can travel to a source of ignition and flash back. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Water Reactive. Material will react with water and may release a flammable and/or toxic gas. Use water spray to keep fire-exposed containers cool. Wear appropriate protective clothing to prevent contact with skin and eyes. Wear a self-contained breathing apparatus (SCBA) to prevent contact with thermal decomposition products. Containers may explode in the heat of a fire. Flammable liquid and vapor. May ignite or explode on contact with steam or moist air.

Extinguishing Media: Use dry sand or earth to smother fire. If water is the only media

available, use in flooding amounts. DO NOT USE WATER! Do NOT use straight streams of water. Contact professional fire-fighters immediately. Cool containers with flooding quantities of water until well after fire is out.

Flash Point: 126e deg F (52.22 deg C)

Autoignition Temperature: 630 deg F (332.22 deg C)

Explosion Limits, Lower:2.9%

Upper: 10.3%

NFPA Rating: (estimated) Health: 3; Flammability: 2; Instability: 1

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks: Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Avoid runoff into storm sewers and ditches which lead to waterways. Clean up spills immediately, observing precautions in the Protective Equipment section. Remove all sources of ignition. Use a spark-proof tool. Provide ventilation. Do not expose spill to water. Spill may be carefully neutralized with lime (calcium oxide, CaO). Cover with material such as dry soda ash or calcium carbonate and place into a closed container for disposal. A vapor suppressing foam may be used to reduce vapors.

Section 7 - Handling and Storage

Handling: Remove contaminated clothing and wash before reuse. Do not allow water to get into the container because of violent reaction. Ground and bond containers when transferring material. Use spark-proof tools and explosion proof equipment. Do not breathe dust, vapor, mist, or gas. Do not get in eyes, on skin, or on clothing. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep away from heat, sparks and flame. Use with adequate ventilation. Discard contaminated shoes. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames. Keep from contact with moist air and steam.

Storage: Keep away from heat, sparks, and flame. Keep away from sources of ignition. Do not store in direct sunlight. Keep container closed when not in use. Keep from contact with oxidizing materials. Store in a cool, dry, well-ventilated area away from incompatible substances. Keep away from water. Flammables-area.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local explosion-proof ventilation to keep airborne levels to acceptable levels.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Acetic anhydride	5 ppm TWA	200 ppm IDLH	5 ppm TWA; 20 mg/m ³ TWA

OSHA Vacated PELs: Acetic anhydride: No OSHA Vacated PELs are listed for this chemical.

Personal Protective Equipment

Eyes: Wear chemical goggles.

Skin: Wear appropriate protective gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respirators: A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant a respirator's use.

Section 9 - Physical and Chemical Properties

Physical State: Liquid

Appearance: colorless

Odor: strong odor - pungent odor - acetic odor

pH: Not available.

Vapor Pressure: 3.9 mm Hg @68F

Vapor Density: 3.5 (air=1)

Evaporation Rate:0.46 (n-butyl acetate=1)

Viscosity: Not available.

Boiling Point: 137 deg C

Freezing/Melting Point:Not available.

Decomposition Temperature:Not available.

Solubility: Decomposes.

Specific Gravity/Density:1.0820g/cm³

Molecular Formula:C₄H₆O₃

Molecular Weight:102.09

Section 10 - Stability and Reactivity

Chemical Stability: Stable. However, may decompose if exposed to moist air or water. Substance is readily hydrolyzed. Reacts with water to form corresponding acid.

Conditions to Avoid: Ignition sources, excess heat, exposure to moist air or water.

Incompatibilities with Other Materials: Alcohols, moisture, bases, strong oxidizing agents, strong reducing agents, metal powders.

Hazardous Decomposition Products: Carbon monoxide, irritating and toxic fumes and gases, carbon dioxide.

Hazardous Polymerization: Has not been reported.

Section 11 - Toxicological Information

RTECS#:

CAS# 108-24-7: AK1925000

LD50/LC50:

CAS# 108-24-7:

Inhalation, rat: LC50 = 1000 ppm/4H;

Oral, rat: LD50 = 1780 mg/kg;

Skin, rabbit: LD50 = 4 mL/kg; <BR.

Carcinogenicity:

CAS# 108-24-7: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

Epidemiology: No information found.

Teratogenicity: No information found.

Reproductive Effects: No information found.

Neurotoxicity: No information found.

Mutagenicity: No information found.

Other Studies: See actual entry in RTECS for complete information.

Section 12 - Ecological Information

Ecotoxicity: No data available. No information available.

Environmental: Terrestrial: Will readily infiltrate downward toward ground water. Aquatic: Will react slowly and become miscible, and will produce an irritating vapor. Mixing takes place and the spill is diluted. In rivers, the principal mixing agent is stream turbulence. Atmospheric: Since acetic anhydride is a relatively non-volatile liquid, direct venting of the vapor to the atmosphere from a hole in a ruptured vessel does not constitute a significant hazard downwind. Only vapor released from a liquid pool spilled on a ground or water surfaces is important.

Physical: Not expected to bioconcentrate or biodegrade.

Other: For more information, see "HANDBOOK OF ENVIRONMENTAL FATE AND EXPOSURE DATA."

Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

RCRA P-Series: None listed.

RCRA U-Series: None listed.

Section 14 - Transport Information

	US DOT	Canada TDG
Shipping Name:	ACETIC ANHYDRIDE	ACETIC ANHYDRIDE
Hazard Class:	8	8(3)
UN Number:	UN1715	UN1715
Packing Group:	II	II

Section 15 - Regulatory Information

US FEDERAL

TSCA

CAS# 108-24-7 is listed on the TSCA inventory.

Health & Safety Reporting List

None of the chemicals are on the Health & Safety Reporting List.

Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

Section 12b

None of the chemicals are listed under TSCA Section 12b.

TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

CERCLA Hazardous Substances and corresponding RQs

CAS# 108-24-7: 5000 lb final RQ; 2270 kg final RQ

SARA Section 302 Extremely Hazardous Substances

None of the chemicals in this product have a TPQ.

SARA Codes

CAS # 108-24-7: acute, chronic, flammable, reactive.

Section 313 No chemicals are reportable under Section 313.

Clean Air Act:

This material does not contain any hazardous air pollutants.

This material does not contain any Class 1 Ozone depletors.

This material does not contain any Class 2 Ozone depletors.

Clean Water Act:

CAS# 108-24-7 is listed as a Hazardous Substance under the CWA.

None of the chemicals in this product are listed as Priority Pollutants under the CWA.

None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.

STATE

CAS# 108-24-7 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

California Prop 65

California No Significant Risk Level: None of the chemicals in this product are listed.

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols:

C

Risk Phrases:

R 10 Flammable.

R 20/22 Harmful by inhalation and if swallowed.

R 34 Causes burns.

Safety Phrases:

S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S 36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

WGK (Water Danger/Protection)

CAS# 108-24-7: 1

Canada - DSL/NDSL

CAS# 108-24-7 is listed on Canada's DSL List.

Canada - WHMIS

This product has a WHMIS classification of B3, D1A, D2B, E.

Canadian Ingredient Disclosure List

CAS# 108-24-7 is listed on the Canadian Ingredient Disclosure List.

Material Safety Data Sheet

Cinnamyl alcohol

ACC# 51812

Section 1 - Chemical Product and Company Identification

MSDS Name: Cinnamyl alcohol

Catalog Numbers: AC148520000, AC148520050, AC148521000, AC148522500, AC148525000

Synonyms: 3-Phenyl-2-propene-1-ol.

Company Identification:

Acros Organics N.V.

One Reagent Lane

Fair Lawn, NJ 07410

For information in North America, call: 800-ACROS-01

For emergencies in the US, call CHEMTREC: 800-424-9300

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
104-54-1	Cinnamyl alcohol	98	203-212-3

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: white to yellow solid.

Warning! Harmful if swallowed. Causes eye and skin irritation. May cause allergic skin reaction. May cause respiratory tract irritation.

Target Organs: Blood, eyes, skin.

Potential Health Effects

Eye: Causes eye irritation.

Skin: Causes skin irritation. May cause skin sensitization, an allergic reaction, which becomes evident upon re-exposure to this material. May be harmful if absorbed through the skin.

Ingestion: Harmful if swallowed. May cause irritation of the digestive tract.

Inhalation: May cause respiratory tract irritation. May be harmful if inhaled.

Chronic: Adverse reproductive effects have been reported in animals. Chronic exposure may cause blood effects.

Section 4 - First Aid Measures

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.

Skin: Get medical aid. Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.

Ingestion: Do not induce vomiting. Get medical aid immediately. Call a poison control center.

Inhalation: Remove from exposure and move to fresh air immediately. If breathing is difficult, give oxygen. Get medical aid. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

Notes to Physician: Treat symptomatically.

Section 5 - Fire Fighting Measures

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

Extinguishing Media: Use water spray, dry chemical, carbon dioxide, or chemical foam.

Flash Point: 126 deg C (258.80 deg F)

Autoignition Temperature: 395 deg C (743.00 deg F)

Explosion Limits, Lower:Not available.

Upper: Not available.

NFPA Rating: (estimated) Health: 2; Flammability: 1; Instability: 1

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks: Vacuum or sweep up material and place into a suitable disposal container. Avoid generating dusty conditions. Provide ventilation. Do not let this chemical enter the environment.

Section 7 - Handling and Storage

Handling: Minimize dust generation and accumulation. Do not get in eyes, on skin, or on clothing. Do not ingest or inhale. Use with adequate ventilation.

Storage: Store in a cool, dry place. Store in a tightly closed container. Store protected from light and air.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Cinnamyl alcohol	none listed	none listed	none listed

OSHA Vacated PELs: Cinnamyl alcohol: No OSHA Vacated PELs are listed for this chemical.

Personal Protective Equipment

Eyes: 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: Wear appropriate protective gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respirators: 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.

Section 9 - Physical and Chemical Properties

Physical State: Solid

Appearance: white to yellow

Odor: hyacinth-like

pH: Not available.

Vapor Pressure: 1.33 mbar @ 114 deg C

Vapor Density: Not available.

Evaporation Rate: Not available.

Viscosity: Not available.

Boiling Point: 258 deg C @ 760 mmHg

Freezing/Melting Point: 31 - 35 deg C

Decomposition Temperature: Not available.

Solubility: Soluble.

Specific Gravity/Density: 1.040

Molecular Formula: C₉H₁₀O

Molecular Weight: 134.18

Section 10 - Stability and Reactivity

Chemical Stability: Oxidizes slowly on exposure to heat, light and air.

Conditions to Avoid: Incompatible materials, light, dust generation, exposure to air, heat.

Incompatibilities with Other Materials: Aluminum, strong oxidizing agents.

Hazardous Decomposition Products: Carbon monoxide, carbon dioxide, carbon dioxide.

Hazardous Polymerization: Will not occur.

Section 11 - Toxicological Information

RTECS#:

CAS# 104-54-1: GE2200000

LD50/LC50:

CAS# 104-54-1:

Draize test, rabbit, skin: 500 mg/24H Moderate;

Oral, mouse: LD50 = 2675 mg/kg;

Oral, rat: LD50 = 2 gm/kg;

Skin, rabbit: LD50 = >5 gm/kg;

.

Carcinogenicity:

CAS# 104-54-1: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

Epidemiology: No information available.

Teratogenicity: No information available.

Reproductive Effects: Adverse reproductive effects have occurred in experimental animals.

Mutagenicity: Mutation in microorganisms: See actual entry in RTECS for complete information.

Neurotoxicity: No information available.

Other Studies:

Section 12 - Ecological Information

Ecotoxicity: No data available. No information available.

Environmental: No information found.

Physical: No information found.

Other: Do not empty into drains.

Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

RCRA P-Series: None listed.

RCRA U-Series: None listed.

Section 14 - Transport Information

	US DOT	Canada TDG
Shipping Name:	Not regulated.	Not regulated.
Hazard Class:		
UN Number:		
Packing Group:		

Section 15 - Regulatory Information

US FEDERAL

TSCA

CAS# 104-54-1 is listed on the TSCA inventory.

Health & Safety Reporting List

None of the chemicals are on the Health & Safety Reporting List.

Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

Section 12b

None of the chemicals are listed under TSCA Section 12b.

TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

CERCLA Hazardous Substances and corresponding RQs

None of the chemicals in this material have an RQ.

SARA Section 302 Extremely Hazardous Substances

None of the chemicals in this product have a TPQ.

SARA Codes

CAS # 104-54-1: immediate.

Section 313 No chemicals are reportable under Section 313.

Clean Air Act:

This material does not contain any hazardous air pollutants.

This material does not contain any Class 1 Ozone depletors.

This material does not contain any Class 2 Ozone depletors.

Clean Water Act:

None of the chemicals in this product are listed as Hazardous Substances under the CWA.

None of the chemicals in this product are listed as Priority Pollutants under the CWA.

None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.

STATE

CAS# 104-54-1 is not present on state lists from CA, PA, MN, MA, FL, or NJ.

California Prop 65

California No Significant Risk Level: None of the chemicals in this product are listed.

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols:

XN

Risk Phrases:

R 22 Harmful if swallowed.

R 36/38 Irritating to eyes and skin.

R 43 May cause sensitization by skin contact.

Safety Phrases:

S 24 Avoid contact with skin.

S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S 37/39 Wear suitable gloves and eye/face protection.

WGK (Water Danger/Protection)

CAS# 104-54-1: 0

Canada - DSL/NDSL

CAS# 104-54-1 is listed on Canada's DSL List.

Canada - WHMIS

This product has a WHMIS classification of D1B, D2B.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

Canadian Ingredient Disclosure List

Material Safety Data Sheet

P-Tert.-Butylbenzyl Alcohol, 98%

ACC# 78673

Section 1 - Chemical Product and Company Identification

MSDS Name: P-Tert.-Butylbenzyl Alcohol, 98%

Catalog Numbers: AC180090000, AC180090050

Synonyms: 4-Tert.-Butylbenzyl Alcohol; Benzenemethanol, 4-(1,1-Dimethylethyl)-.

Company Identification:

Acros Organics N.V.

One Reagent Lane

Fair Lawn, NJ 07410

For information in North America, call: 800-ACROS-01

For emergencies in the US, call CHEMTREC: 800-424-9300

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
877-65-6	P-Tert.-Butylbenzyl Alcohol	98%	212-894-1

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: clear, colorless liquid.

Caution! May cause eye and skin irritation. May cause respiratory and digestive tract irritation. The toxicological properties of this material have not been fully investigated.

Target Organs: No data found.

Potential Health Effects

Eye: May cause eye irritation.

Skin: May cause skin irritation.

Ingestion: May cause irritation of the digestive tract. The toxicological properties of this substance have not been fully investigated.

Inhalation: May cause respiratory tract irritation. The toxicological properties of this substance have not been fully investigated.

Chronic: No information found.

Section 4 - First Aid Measures

Eyes: Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.

Skin: Get medical aid. Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse.

Ingestion: Never give anything by mouth to an unconscious person. Get medical aid. Do NOT induce vomiting. If conscious and alert, rinse mouth and drink 2-4 cupfuls of milk or water.

Inhalation: Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

Notes to Physician: Treat symptomatically and supportively.

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Runoff from fire control or dilution water may cause pollution.

Extinguishing Media: Use agent most appropriate to extinguish fire. Use water spray, dry chemical, carbon dioxide, or appropriate foam.

Flash Point: > 112 deg C (> 233.60 deg F)

Autoignition Temperature: Not applicable.

Explosion Limits, Lower: Not available.

Upper: 1

NFPA Rating: (estimated) Health: 1; Flammability: 1; Instability: 0

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks: Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Avoid runoff into storm sewers and ditches which lead to waterways. Clean up spills immediately, observing precautions in the Protective Equipment section. Provide ventilation.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use with adequate ventilation. Avoid contact with eyes, skin, and clothing. Keep container tightly closed. Avoid ingestion and inhalation.

Storage: Keep container closed when not in use. Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
P-Tert.-Butylbenzyl Alcohol	none listed	none listed	none listed

OSHA Vacated PELs: P-Tert.-Butylbenzyl Alcohol: No OSHA Vacated PELs are listed for this chemical.

Personal Protective Equipment

Eyes: 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: Wear appropriate protective gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to minimize contact with skin.

Respirators: 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.

Section 9 - Physical and Chemical Properties

Physical State: Liquid

Appearance: clear, colorless

Odor: Not available.

pH: Not available.

Vapor Pressure: Not available.

Vapor Density: 5.66

Evaporation Rate: Not available.

Viscosity: Not available.

Boiling Point: 140 deg C @ 20.00mm Hg

Freezing/Melting Point: Not available.

Decomposition Temperature: Not available.

Solubility: Not available.

Specific Gravity/Density:.9280g/cm³
Molecular Formula:C₁₁H₁₆O
Molecular Weight:164.25

Section 10 - Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures.
Conditions to Avoid: Incompatible materials, excess heat, strong oxidants.
Incompatibilities with Other Materials: Acids, acid anhydrides, acid chlorides, oxidizing agents.
Hazardous Decomposition Products: Carbon monoxide, carbon monoxide, carbon dioxide.
Hazardous Polymerization: Has not been reported

Section 11 - Toxicological Information

RTECS#:
CAS# 877-65-6 unlisted.
LD50/LC50:
Not available.

Carcinogenicity:
CAS# 877-65-6: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

Epidemiology: No information found
Teratogenicity: No information found
Reproductive Effects: No information found
Mutagenicity: No information found
Neurotoxicity: No information found
Other Studies:

Section 12 - Ecological Information

No information available.

Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a

hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

RCRA P-Series: None listed.

RCRA U-Series: None listed.

Section 14 - Transport Information

	US DOT	Canada TDG
Shipping Name:	Not regulated as a hazardous material	No information available.
Hazard Class:		
UN Number:		
Packing Group:		

Section 15 - Regulatory Information

US FEDERAL

TSCA

CAS# 877-65-6 is listed on the TSCA inventory.

Health & Safety Reporting List

None of the chemicals are on the Health & Safety Reporting List.

Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

Section 12b

None of the chemicals are listed under TSCA Section 12b.

TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

CERCLA Hazardous Substances and corresponding RQs

None of the chemicals in this material have an RQ.

SARA Section 302 Extremely Hazardous Substances

None of the chemicals in this product have a TPQ.

Section 313 No chemicals are reportable under Section 313.

Clean Air Act:

This material does not contain any hazardous air pollutants.

This material does not contain any Class 1 Ozone depletors.

This material does not contain any Class 2 Ozone depletors.

Clean Water Act:

None of the chemicals in this product are listed as Hazardous Substances under the CWA.

None of the chemicals in this product are listed as Priority Pollutants under the CWA.

None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.

STATE

CAS# 877-65-6 is not present on state lists from CA, PA, MN, MA, FL, or NJ.

California Prop 65

California No Significant Risk Level: None of the chemicals in this product are listed.

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols:

Not available.

Risk Phrases:

Safety Phrases:

S 24/25 Avoid contact with skin and eyes.

WGK (Water Danger/Protection)

CAS# 877-65-6: No information available.

Canada - DSL/NDSL

CAS# 877-65-6 is listed on Canada's NDSL List.

Canada - WHMIS

WHMIS: Not available.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

Canadian Ingredient Disclosure List

STARKEY CHEMICAL PROCESS CO -- DUPLICATING FLUID TYPE II -- 7510-00-272-9800

=====
Product Identification
=====

Product ID:DUPLICATING FLUID TYPE II
MSDS Date:05/01/1990
FSC:7510
NIIN:00-272-9800
MSDS Number: BSRXM
=== Responsible Party ===
Company Name:STARKEY CHEMICAL PROCESS CO
Address:9600 W OGDEN AVE
City:LA GRANGE
State:IL
ZIP:60525-2534
Country:US
Info Phone Num:800-323-3040
Emergency Phone Num:800-323-3040
CAGE:86472

==== Contractor Identification ====
Company Name:STARKEY CHEMICAL PROCESS CO
Address:9600 W OGDEN AVE
Box:City:LA GRANGE
State:IL
ZIP:60525-2534
Country:US
Phone:708-352-2565
CAGE:86472

=====
Composition/Information on Ingredients
=====

Ingred Name:ETHYL ALCOHOL (ETHANOL)
CAS:64-17-5
RTECS #:KQ6300000
Fraction by Wt: 33% %
Other REC Limits:NONE RECOMMENDED
OSHA PEL:1000 PPM
ACGIH TLV:1000 PPM; 9394

Ingred Name:METHYL ALCOHOL (METHANOL) (SARA III)
CAS:67-56-1
RTECS #:PC1400000
Fraction by Wt: 62% %
Other REC Limits:NONE RECOMMENDED
OSHA PEL:S,200PPM
ACGIH TLV:S,200PPM/250STEL; 94
EPA Rpt Qty:5000 LBS
DOT Rpt Qty:5000 LBS

Ingred Name:DIPROPYLENE GLYCOL METHYL ETHER
CAS:34590-94-8
RTECS #:JM1575000
Fraction by Wt: 5% %
Other REC Limits:NONE RECOMMENDED
OSHA PEL:S,100PPM
ACGIH TLV:S,100PPM/150STEL; 94

=====
===== Hazards Identification =====

LD50 LC50 Mixture:TLV 200PPM (METHYL ALCOHOL)
Routes of Entry: Inhalation:YES Skin:YES Ingestion:YES
Reports of Carcinogenicity:NTP:NO IARC:NO OSHA:NO
Health Hazards Acute and Chronic:ACUTE: LETHARGY, DIARRHEA, NAUSEA, EYE
AND MUCOUS MEMBRAANE IRRITATION. CHRONIC: NONE KNOWN.
Explanation of Carcinogenicity:THIS COMPOUND CONTAINS NO INGREDIENTS AT
CONCENTRATIONS OF 0.1% OR GREATER THAT ARE CARCINOGENS OR SUSPECT
CARCINOGENS.
Effects of Overexposure:WEAKNESS, FAATIGUE AND DIZZINESS. SKIN MAY
BECOME CRACKED AND DRY DUE TO SOLVENT ACTION.
Medical Cond Aggravated by Exposure:MAY AGGRAVATE EXISTING RESPIRATORY
OR SKIN DISORDERS.

=====
===== First Aid Measures =====

First Aid:INHALATION: REMOVE FROM EXPOSURE. RESTORE BREATHING. KEEP
WARM AND QUIET. GET MEDICAL ATTENTION. SKIN: WASH AFFECTED AREA
THOROUGHLY WITH SOAP AND WATER. IF IRRITATION PERSISTS, GET MEDICAL
ATTENTION. EYES: FLUSH WITH LARGE AMOUNTS OF WATERFOR 15 MINUTES.
GET MEDICAL ATTENTION. INGESTION: INDUCE VOMITING IMMEDIATELY BE
GIVING TWO GLASSES OF WATER AND STICKING FINGER DOWN THROAT. GET
PHYSICIAN.

=====
===== Fire Fighting Measures =====

Flash Point Method:TCC
Flash Point:60.0F,15.6C
Lower Limits:4.3 %
Upper Limits:36.0 %
Extinguishing Media:ALCOHOL FOAM, CARBON DIOXIDE, DRY CHEMICAL, WATER
Fire Fighting Procedures:FIRE FIGHTERS SHOULD USE NIOSH APPROVED SCBA &
FULL PROTECTIVE EQUIPMENT WHEN FIGHTING CHEMICAL FIRE. USE WATER
SPRAY TO COOL NEARBY CONTAINERS EXPOSED TO FIRE.
Unusual Fire/Explosion Hazard:ALCOHOL FLAMES MAY BE DIFFICULT TO SEE
BECAUSE THEY ARE VIRTUALLY COLORLESS.

=====
===== Accidental Release Measures =====

Spill Release Procedures:REMOVE ALL SOURCES OF IGNITION. ONLY PROPERLY
PROTECTED PERSONNEL SHOULD REMAIN IN AREA. LEAKING CONTAINERS
SHOULD BE REMOVED TO OUTDOORS OR VENTILATED AREA. ALL SPILLS SHOULD
BE FLUSHED WITH LARGE AM OUNTS OF WATER.
Neutralizing Agent:NONE SPECIFIED BY MANUFACTURER.

=====
===== Handling and Storage =====

Handling and Storage Precautions:KEEP AWAY FROM HEAT OR SOURCES OF
IGNITION. USE ADEQUATE VENTILATION. KEEP CONTAINERS CLOSED WHEN NOT
IN USE. CONTAINERS ARE HAZARDOUS WHEN EMPTY.
Other Precautions:DO NOT TAKE INTERNALLY. CONTAINERS MUST BE MARKED
"POISON" & "FLAMMABLE". DO NOT ALLOW TO DRAIN INTO SEWERS OR WATER
WAYS. METHANOL VAPOR MAY FORM A FLAMMABLE OR EXPLOSIVE MIXTURE.

=====
===== Exposure Controls/Personal Protection =====

Respiratory Protection:IF VENTILATION DOES NOT MAINTAIN INHALATION EXOSURES BELOW PEL (TLV), USE NIOSH/MSHA APPROVED RESPIRATOR AS PER CURRENT 29 CFR 1910.134, INSTRUCTIONS/WARNINGS AND NIOSH RESPIRATOR SELECTION.

Ventilation:LOCAL EXHAUST RECOMMENDED. MECHANICAL VENTILATION MUST BE EXPLOSION-PROOF FANS/HOOD ENCLOSURES.

Protective Gloves:NITRILE VINYL

Eye Protection:SAFETY GLASSES

Other Protective Equipment:SAFETY SHOWERS AND EYEWASH STATIONS

Work Hygienic Practices:WASH WITH SOAP AND WATER AFTER HANDLING PRODUCT AND BEFORE EATING DRINKING OR SMOKING.

Supplemental Safety and Health
NONE SPECIFIED BY MANUFACTURER.

===== Physical/Chemical Properties =====

HCC:F2

Boiling Pt:B.P. Text:166F,74C

Melt/Freeze Pt:M.P/F.P Text:LIQUID

Vapor Pres:71.8

Vapor Density:1.4

Spec Gravity:.801-.811

pH:7.25

Evaporation Rate & Reference:1.7 (NO REFERENCE GIVEN)

Solubility in Water:COMPLETE

Appearance and Odor:COLORLESS LIQUID, CHARACTERISTIC ALCOHOL ODOR

Percent Volatiles by Volume:100 %

===== Stability and Reactivity Data =====

Stability Indicator/Materials to Avoid:YES

STRONG OXIDIZING MATERIALS.

Stability Condition to Avoid:KEEP AWAY FROM HEAT OR SOURCES OF IGNITION.

Hazardous Decomposition Products:INCOMPLETE COMBUSTION WILL GENERATE POISONOUS/TOXIC WASTE.

===== Disposal Considerations =====

Waste Disposal Methods:PREVENT WASTE FROM CONTAMINATING SURROUNDING ENVIRONMENT. DISCARD ANY PRODUCT, RESIDUE, DISPOSAL CONTAINER OR LINER IN ACCORDANCE WITH ALL FEDERAL, STATE AND LOCAL REGULATIONS.

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Material Safety Data Sheet

Isoamyl alcohol

ACC# 11550

Section 1 - Chemical Product and Company Identification

MSDS Name: Isoamyl alcohol

Catalog Numbers: AC126480000, AC126480010, AC126480025, AC126485000, AC412720000, AC412720010, AC412720030, AC412730000, AC412735000, S75040, S79903, S93407, A393-4, A393-500, BP1150-500, NC9318819

Synonyms: Isopentyl alcohol; 3-Methyl-1-butanol; Isoamyl alcohol; Isopentanol; Isobutylcarbinol.

Company Identification:

Fisher Scientific
1 Reagent Lane
Fair Lawn, NJ 07410

For information, call: 201-796-7100

Emergency Number: 201-796-7100

For CHEMTREC assistance, call: 800-424-9300

For International CHEMTREC assistance, call: 703-527-3887

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
123-51-3	Isoamyl alcohol	>99	204-633-5

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: clear, colorless liquid. Flash Point: 43 deg C.

Warning! Flammable liquid and vapor. Causes eye, skin, and respiratory tract irritation. May be harmful if swallowed or inhaled. Aspiration hazard if swallowed. Can enter lungs and cause damage. May cause central nervous system depression.

Target Organs: Central nervous system, lungs, eyes, skin.

Potential Health Effects

Eye: Causes eye irritation.

Skin: Causes skin irritation. Prolonged or repeated contact may dry/defat the skin and

cause irritation.

Ingestion: May cause gastrointestinal irritation with nausea, vomiting and diarrhea. Aspiration of material into the lungs may cause chemical pneumonitis, which may be fatal. May cause a narcotic effect with possible coma. May be harmful if swallowed.

Inhalation: Causes respiratory tract irritation. May cause visual abnormalities. May be harmful if inhaled. Causes narcotic effects including headache, dizziness, weakness, unconsciousness.

Chronic: No information found.

Section 4 - First Aid Measures

Eyes: In case of contact, immediately flush eyes with plenty of water for a t least 15 minutes. Get medical aid.

Skin: In case of contact, flush skin with plenty of water. Remove contaminated clothing and shoes. Get medical aid if irritation develops and persists. Wash clothing before reuse.

Ingestion: Potential for aspiration if swallowed. Get medical aid immediately. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If vomiting occurs naturally, have victim lean forward.

Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

Notes to Physician: Treat symptomatically and supportively.

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Use water spray to keep fire-exposed containers cool. Containers may explode if exposed to fire. Vapors are heavier than air and may travel to a source of ignition and flash back. Vapors can spread along the ground and collect in low or confined areas.

Extinguishing Media: Use water spray, dry chemical, carbon dioxide, or alcohol-resistant foam.

Flash Point: 43 deg C (109.40 deg F)

Autoignition Temperature: 350 deg C (662.00 deg F)

Explosion Limits, Lower:1.2

Upper: 9.0 @ 100°C

NFPA Rating: (estimated) Health: 1; Flammability: 2; Instability: 0

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks: Absorb spill with inert material (e.g. vermiculite, sand or earth), then place

in suitable container. Remove all sources of ignition. Use a spark-proof tool. Provide ventilation. A vapor suppressing foam may be used to reduce vapors. Prevent spreading of vapors through sewers, ventilation systems and confined areas.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use with adequate ventilation. Ground and bond containers when transferring material. Use spark-proof tools and explosion proof equipment. Avoid contact with eyes, skin, and clothing. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames. Avoid breathing vapor or mist.

Storage: Keep away from sources of ignition. Store in a cool, dry, well-ventilated area away from incompatible substances. Flammables-area.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Isoamyl alcohol	100 ppm TWA; 125 ppm STEL	100 ppm TWA; 360 mg/m ³ TWA 500 ppm IDLH	100 ppm TWA; 360 mg/m ³ TWA

OSHA Vacated PELs: Isoamyl alcohol: 100 ppm TWA; 360 mg/m³ TWA

Personal Protective Equipment

Eyes: Wear chemical splash goggles.

Skin: Wear appropriate gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respirators: 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.

Section 9 - Physical and Chemical Properties

Physical State: Liquid

Appearance: clear, colorless

Odor: strong odor - disagreeable odor
pH: Not available.
Vapor Pressure: 2.37 mm Hg @ 25 deg C
Vapor Density: 3.04 (air=1)
Evaporation Rate:0.03 (ether=1)
Viscosity: 4.37 cps @ 20 deg C
Boiling Point: 130 deg C
Freezing/Melting Point:-117 deg C
Decomposition Temperature:Not available.
Solubility: 2g/100ml @ 14°C.
Specific Gravity/Density:0.8 (water=1)
Molecular Formula:C5H12O
Molecular Weight:88.15

Section 10 - Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures.
Conditions to Avoid: Ignition sources, excess heat.
Incompatibilities with Other Materials: Strong oxidizing agents.
Hazardous Decomposition Products: Carbon monoxide, irritating and toxic fumes and gases, carbon dioxide.
Hazardous Polymerization: Will not occur.

Section 11 - Toxicological Information

RTECS#:

CAS# 123-51-3: EL5425000

LD50/LC50:

CAS# 123-51-3:

Draize test, rabbit, eye: 20 mg/24H Moderate;

Draize test, rabbit, skin: 20 mg/24H Moderate;

Oral, rabbit: LD50 = 3438 mg/kg;

Oral, rat: LD50 = 1300 mg/kg;

Oral, rat: LD50 = 4300 mg/kg;

Skin, rabbit: LD50 = 3970 uL/kg;

.

Carcinogenicity:

CAS# 123-51-3: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

Epidemiology: No information available.

Teratogenicity: No information available.

Reproductive Effects: No information available.

Mutagenicity: No information available.

Neurotoxicity: No information available.

Other Studies:

Section 12 - Ecological Information

Ecotoxicity: No data available. Goldfish (fresh water) 100ppm/82H (Lethal) Creek chub (river water) 400-600ppm/24H (Critical range)

Environmental: Terrestrial: Highly mobile in soil and will leach into groundwater. Aquatic: Volatilizes into atmosphere. Atmospheric: Volatilizes rapidly, decomposed by photochemically produced hydroxyl radicals. Not expected to bioconcentrate. Readily biodegrades.

Physical: No information available.

Other: No information available.

Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

RCRA P-Series: None listed.

RCRA U-Series: None listed.

Section 14 - Transport Information

	US DOT	Canada TDG
Shipping Name:	PENTANOLS	Pentanols
Hazard Class:	3	3
UN Number:	UN1105	UN1105
Packing Group:	III	III

Section 15 - Regulatory Information

US FEDERAL

TSCA

CAS# 123-51-3 is listed on the TSCA inventory.

Health & Safety Reporting List

None of the chemicals are on the Health & Safety Reporting List.

Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

Section 12b

None of the chemicals are listed under TSCA Section 12b.

TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

CERCLA Hazardous Substances and corresponding RQs

None of the chemicals in this material have an RQ.

SARA Section 302 Extremely Hazardous Substances

None of the chemicals in this product have a TPQ.

SARA Codes

CAS # 123-51-3: immediate, fire.

Section 313 No chemicals are reportable under Section 313.

Clean Air Act:

This material does not contain any hazardous air pollutants.

This material does not contain any Class 1 Ozone depletors.

This material does not contain any Class 2 Ozone depletors.

Clean Water Act:

None of the chemicals in this product are listed as Hazardous Substances under the CWA.

None of the chemicals in this product are listed as Priority Pollutants under the CWA.

None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.

STATE

CAS# 123-51-3 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

California Prop 65

California No Significant Risk Level: None of the chemicals in this product are listed.

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols:

XN

Risk Phrases:

R 10 Flammable.

R 20/22 Harmful by inhalation and if swallowed.

Safety Phrases:

S 16 Keep away from sources of ignition - No smoking.

WGK (Water Danger/Protection)

CAS# 123-51-3: 1

Canada - DSL/NDSL

CAS# 123-51-3 is listed on Canada's DSL List.

Canada - WHMIS

This product has a WHMIS classification of B3, D2B.

This product has been classified in accordance with the hazard criteria of the Controlled

Products Regulations and the MSDS contains all of the information required by those regulations.

Canadian Ingredient Disclosure List

CAS# 123-51-3 is listed on the Canadian Ingredient Disclosure List.

Material Safety Data Sheet

IPA Methanol

ACC# 89493

Section 1 - Chemical Product and Company Identification

MSDS Name: IPA Methanol

Catalog Numbers: A462SS-200

Synonyms: Mixture

Company Identification:

Fisher Scientific

1 Reagent Lane

Fair Lawn, NJ 07410

For information, call: 201-796-7100

Emergency Number: 201-796-7100

For CHEMTREC assistance, call: 800-424-9300

For International CHEMTREC assistance, call: 703-527-3887

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
67-63-0	Isopropyl alcohol	99.75	200-661-7
67-56-1	Methyl Alcohol	0.18	200-659-6
91-22-5	Quinoline	0.07	202-051-6

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: Not available. Flash Point: 11.7 deg C.

Warning! Flammable liquid and vapor. May cause eye, skin, and respiratory tract irritation. May cause central nervous system depression. May form explosive peroxides. May cause kidney damage.

Target Organs: Kidneys, central nervous system.

Potential Health Effects

Eye: Produces irritation, characterized by a burning sensation, redness, tearing, inflammation, and possible corneal injury.

Skin: Prolonged and/or repeated contact may cause defatting of the skin and dermatitis. May cause irritation with pain and stinging, especially if the skin is abraded.

Ingestion: May cause gastrointestinal irritation with nausea, vomiting and diarrhea. May cause kidney damage. May cause systemic toxicity with acidosis. May cause central nervous system depression, characterized by excitement, followed by headache, dizziness, drowsiness, and nausea. Advanced stages may cause collapse, unconsciousness, coma and possible death due to respiratory failure.

Inhalation: Inhalation of high concentrations may cause central nervous system effects characterized by nausea, headache, dizziness, unconsciousness and coma. Inhalation of vapor may cause respiratory tract irritation.

Chronic: Prolonged or repeated skin contact may cause defatting and dermatitis. May cause allergic skin reaction in some

Section 4 - First Aid Measures

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid immediately.

Skin: Get medical aid. Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.

Ingestion: If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately.

Inhalation: Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

Notes to Physician: Urine acetone test may be helpful in diagnosis.

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Vapors may form an explosive mixture with air. Vapors can travel to a source of ignition and flash back. Use water spray to keep fire-exposed containers cool. Containers may explode in the heat of a fire. Flammable liquid and vapor. May form explosive peroxides. Vapors may be heavier than air. They can spread along the ground and collect in low or confined areas.

Extinguishing Media: Use water spray to cool fire-exposed containers. Water may be ineffective. Do NOT use straight streams of water. For large fires, use dry chemical, carbon dioxide, alcohol-resistant foam, or water spray. For small fires, use carbon dioxide, dry chemical, dry sand, or alcohol-resistant foam. Cool containers with flooding quantities of water until well after fire is out.

Flash Point: 11.7 deg C (53.06 deg F)

Autoignition Temperature: Not available.

Explosion Limits, Lower:Not available.

Upper: Not available.

NFPA Rating: (estimated) Health: ; Flammability: ; Instability:

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.
Spills/Leaks: Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Remove all sources of ignition. A vapor suppressing foam may be used to reduce vapors.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Use with adequate ventilation. Ground and bond containers when transferring material. Use spark-proof tools and explosion proof equipment. Avoid contact with eyes, skin, and clothing. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep container tightly closed. Avoid ingestion and inhalation. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames.

Storage: Keep away from heat, sparks, and flame. Keep away from sources of ignition. Keep from contact with oxidizing materials. Store in a cool, dry, well-ventilated area away from incompatible substances.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Isopropyl alcohol	200 ppm TWA; 400 ppm STEL	400 ppm TWA; 980 mg/m ³ TWA 2000 ppm IDLH	400 ppm TWA; 980 mg/m ³ TWA
Methyl Alcohol	200 ppm TWA; 250 ppm STEL; Skin - potential significant contribution to overall exposure by the cutaneous route	200 ppm TWA; 260 mg/m ³ TWA 6000 ppm IDLH	200 ppm TWA; 260 mg/m ³ TWA
Quinoline	none listed	none listed	none listed

OSHA Vacated PELs: Isopropyl alcohol: 400 ppm TWA; 980 mg/m³ TWA Methyl Alcohol: 200 ppm TWA; 260 mg/m³ TWA Quinoline: No OSHA Vacated PELs are listed for this chemical.

Personal Protective Equipment

Eyes: 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: Wear appropriate protective gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respirators: 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.

Section 9 - Physical and Chemical Properties

Physical State: Liquid

Appearance: Not available.

Odor: Not available.

pH: Not available.

Vapor Pressure: Not available.

Vapor Density: Not available.

Evaporation Rate: Not available.

Viscosity: Not available.

Boiling Point: Not available.

Freezing/Melting Point: Not available.

Decomposition Temperature: Not available.

Solubility: Not available.

Specific Gravity/Density: Not available.

Molecular Formula: Not available.

Molecular Weight: Not available.

Section 10 - Stability and Reactivity

Chemical Stability: Stable. This material may be sensitive to peroxide formation.

Conditions to Avoid: This material may be sensitive to peroxide formation., incompatible materials, ignition sources.

Incompatibilities with Other Materials: Strong oxidizers, acetaldehyde, chlorine, ethylene oxide, acids and isocyanates, hydrogen + palladium, nitroform, oleum, phosgene, potassium t-butoxide, oxygen, trinitromethane, barium perchlorate, tetrafluoroborate, chromium trioxide, sodium dichromate + sulfuric acid, aluminum, and aluminum triisopropoxide. Methanol is incompatible with acetyl bromide, alkylaluminum solutions, beryllium hydride, carbon tetrachloride + metals, chloroform + sodium hydroxide, cyanuric chloride, dichloromethane, diethylzinc, metals, oxidants, phosphorus (III) oxide, and potassium tert-butoxide. Quinoline is incompatible dinitrogen tetroxide, hydrogen peroxide, linseed oil + thionyl chloride, maleic anhydride + bases. Isopropyl alcohol has also been reported to be susceptible to autoxidation and should therefore be considered peroxidizable.

Hazardous Decomposition Products: Carbon monoxide, carbon dioxide, acrid smoke and

fumes.

Hazardous Polymerization: May occur.

Section 11 - Toxicological Information

RTECS#:

CAS# 67-63-0: NT8050000

CAS# 67-56-1: PC1400000

CAS# 91-22-5: VA9275000

LD50/LC50:

CAS# 67-63-0:

Draize test, rabbit, eye: 100 mg Severe;

Draize test, rabbit, eye: 10 mg Moderate;

Draize test, rabbit, eye: 100 mg/24H Moderate;

Draize test, rabbit, skin: 500 mg Mild;

Inhalation, mouse: LC50 = 53000 mg/m³;

Inhalation, rat: LC50 = 16000 ppm/8H;

Inhalation, rat: LC50 = 72600 mg/m³;

Oral, mouse: LD50 = 3600 mg/kg;

Oral, mouse: LD50 = 3600 mg/kg;

Oral, rabbit: LD50 = 6410 mg/kg;

Oral, rat: LD50 = 5045 mg/kg;

Oral, rat: LD50 = 5000 mg/kg;

Skin, rabbit: LD50 = 12800

CAS# 67-56-1:

Draize test, rabbit, eye: 40 mg Moderate;

Draize test, rabbit, eye: 100 mg/24H Moderate;

Draize test, rabbit, skin: 20 mg/24H Moderate;

Inhalation, rabbit: LC50 = 81000 mg/m³/14H;

Inhalation, rat: LC50 = 64000 ppm/4H;

Oral, mouse: LD50 = 7300 mg/kg;

Oral, rabbit: LD50 = 14200 mg/kg;

Oral, rat: LD50 = 5600 mg/kg;

Skin, rabbit: LD50 = 15800 mg/kg;

.

CAS# 91-22-5:

Draize test, rabbit, skin: 100 mg/24H Moderate;

Oral, rat: LD50 = 331 mg/kg;

Skin, rabbit: LD50 = 540 uL/kg;

.

Carcinogenicity:

CAS# 67-63-0: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

CAS# 67-56-1: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

CAS# 91-22-5:

- **ACGIH:** Not listed.
- **California:** carcinogen, initial date 10/24/97

- **NTP:** Not listed.
- **IARC:** Not listed.

Epidemiology: Early epidemiological studies suggested an association between the strong acid manufacture of isopropyl alcohol and paranasal sinus cancer in workers. The risk of laryngeal cancer may also be increased in these workers. However, it has not been tested adequately in animals to assess its carcinogenicity.

Teratogenicity: No data available.

Reproductive Effects: No data available.

Mutagenicity: No data available.

Neurotoxicity: No data available.

Other Studies:

Section 12 - Ecological Information

Ecotoxicity: No data available. Acute aquatic effects: Fathead minnow: LC50 = 1000 mg/L/96 Hr. Golden orfe: LC50 = 8970 mg/L/48 Hr. goldfish: LC50 = GT5000 mg/L/24 Hr.

Environmental: This chemical has a low potential to affect aquatic organisms, secondary waste treatment microorganisms, and the germination and growth of some plants. It is readily biodegradable and is not expected to persist in an aquatic environment. It is not likely to bioconcentrate.

Physical: None

Other: None

Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

RCRA P-Series: None listed.

RCRA U-Series:

CAS# 67-56-1: waste number U154 (Ignitable waste).

Section 14 - Transport Information

	US DOT	Canada TDG
Shipping Name:	FLAMMABLE LIQUIDS, N.O.S.	No information available.
Hazard Class:	3	
UN Number:	UN1993	
Packing Group:	II	

Section 15 - Regulatory Information

US FEDERAL

TSCA

CAS# 67-63-0 is listed on the TSCA inventory.

CAS# 67-56-1 is listed on the TSCA inventory.

CAS# 91-22-5 is listed on the TSCA inventory.

Health & Safety Reporting List

CAS# 67-63-0: Effective 12/15/86, Sunset 12/15/96

Chemical Test Rules

CAS# 67-63-0: 40 CFR 799.2325

Section 12b

None of the chemicals are listed under TSCA Section 12b.

TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

CERCLA Hazardous Substances and corresponding RQs

CAS# 67-56-1: 5000 lb final RQ; 2270 kg final RQ CAS# 91-22-5: 5000 lb final RQ; 2270 kg final RQ

SARA Section 302 Extremely Hazardous Substances

None of the chemicals in this product have a TPQ.

SARA Codes

CAS # 67-63-0: immediate, delayed, fire.

CAS # 67-56-1: immediate, fire.

CAS # 91-22-5: immediate.

Section 313

This material contains Isopropyl alcohol (CAS# 67-63-0, 99.75%), which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

Methyl Alcohol is not at a high enough concentration to be reportable under Section 313.

Quinoline is not at a high enough concentration to be reportable under Section 313.

Clean Air Act:

CAS# 67-56-1 is listed as a hazardous air pollutant (HAP).

CAS# 91-22-5 is listed as a hazardous air pollutant (HAP).

This material does not contain any Class 1 Ozone depletors.

This material does not contain any Class 2 Ozone depletors.

Clean Water Act:

CAS# 91-22-5 is listed as a Hazardous Substance under the CWA.

None of the chemicals in this product are listed as Priority Pollutants under the CWA.

None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.

STATE

CAS# 67-63-0 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

CAS# 67-56-1 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

CAS# 91-22-5 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

California Prop 65

WARNING: This product contains Quinoline, a chemical known to the state of California to cause cancer.

California No Significant Risk Level: None of the chemicals in this product are listed.

European/International Regulations**European Labeling in Accordance with EC Directives****Hazard Symbols:**

F

Risk Phrases:

R 11 Highly flammable.

Safety Phrases:

S 16 Keep away from sources of ignition - No smoking.

S 7 Keep container tightly closed.

WGK (Water Danger/Protection)

CAS# 67-63-0: 1

CAS# 67-56-1: 1

CAS# 91-22-5: 2

Canada - DSL/NDSL

CAS# 67-63-0 is listed on Canada's DSL List.

CAS# 67-56-1 is listed on Canada's DSL List.

CAS# 91-22-5 is listed on Canada's DSL List.

Canada - WHMIS

not available.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

Canadian Ingredient Disclosure List

CAS# 67-63-0 is listed on the Canadian Ingredient Disclosure List.

CAS# 67-56-1 is listed on the Canadian Ingredient Disclosure List.

ALDON CORPORATION -- KM00551M, N-BUTYL ALCOHOL --

=====
Product Identification
=====

Product ID:KM00551M, N-BUTYL ALCOHOL
MSDS Date:01/08/1996
FSC:NIIN:Submitter:D DG
Status Code:A
MSDS Number: CLFSY
=== Responsible Party ===
Company Name:ALDON CORPORATION
Address:1533 W HENRIETTA RD
City:AVON
State:NY
ZIP:14414-9508
Country:US
Info Phone Num:716-226-6177
Emergency Phone Num:716-226-6177
Resp. Party Other MSDS Num.:BB 235
Preparer's Name:MICHAEL RASZEJA
Chemtrec Ind/Phone:(800)424-9300
CAGE:6V042
=== Contractor Identification ===
Company Name:AL-DON CHEMICALS INC
Address:1533 W HENRIETTA RD
Box:City:AVON
State:NY
ZIP:14414-9508
Country:US
Phone:716-226-6177
CAGE:6V042
Company Name:NASCO INTL INC., NASCO DIV
Address:901 JANESVILL AVE
Box:City:FORT ATKINSON
State:WI
ZIP:53538-0901
Country:US
Phone:920-563-2446
Contract Num:MDA414-01-P-0615
CAGE:33089

=====
Composition/Information on Ingredients
=====

Ingred Name:N-BUTYL ALCOHOL
CAS:71-36-3
RTECS #:EO1400000
= Wt:100.
OSHA PEL:300 MG/M3;100 PPM
ACGIH STEL:C152 MG/M3;C50 PPM
EPA Rpt Qty:5000 LBS
DOT Rpt Qty:5000 LBS

=====
Hazards Identification
=====

LD50 LC50 Mixture:ACUT ORAL LD50 RATS: 2.5G/KG
Routes of Entry: Inhalation:YES Skin:YES Ingestion:YES
Reports of Carcinogenicity:NTP:NO IARC:NO OSHA:NO

Health Hazards Acute and Chronic:INHALATION: VAPORS CAUSE IRRITATION TO UPPER RESPIRATORY TRACT. HIGH VAPOR CONCENTRATIONS CAN PRODUCE HEADACHE, DIZZINESS, DROWSINESS, CNS DEPRESSION. EYES: CONTACT WITH THE LIQUID OR VAPOR CAUSES IRR ITATION. PROLONGED AND REPEATED EXPOSURE TO VAPOR MAY RESULT IN CORNEAL INJURY. SKIN: PROLONGED AND REPEATED CONTACT CAUSES DRYING AND CRACKING OF THE SKIN, WHICH RESULT IN SKIN IRRITATION AND DERMITI TIS. INGESTION: HARMFUL IF SWALLOWED. MAY CAUSE CENTRAL NERVOUS SYSTEM DEPRESSION, HEADACHE, DIZZINESS AND NAUSEA.

Effects of Overexposure:INHALATION: VAPORS CAUSE IRRITATION TO UPPER RESPIRATORY TRACT. HIGH VAPOR CONCENTRATIONS CAN PRODUCE HEADACHE, DIZZINESS, DROWSINESS, CNS DEPRESSION. EYES: CONTACT WITH THE LIQUID OR VAPOR CAUSES IRR ITATION. PROLONGED AND REPEATED EXPOSURE TO VAPOR MAY RESULT IN CORNEAL INJURY. SKIN: PROLONGED AND REPEATED CONTACT CAUSES DRYING AND CRACKING OF THE SKIN, WHICH RESULT IN SKIN IRRITATION AND DERMITI TIS. INGESTION: HARMFUL IF SWALLOWED. MAY CAUSE CENTRAL NERVOUS SYSTEM DEPRESSION, HEADACHE, DIZZINESS AND NAUSEA.

=====
===== First Aid Measures =====

First Aid:INHALATION: REMOVE TO FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN. CALL PHYSICIAN. EYES: FLUSH THOROUGHLY WITH WATER FOR AT LEAST 15 MINUTES. LIFTI NG UPPER AND LOWER EYELIDS OCCASIONALLY. GET IMMEDIATE MEDICAL ATTENTION. SKIN: FLUSH THOROUGHLY WITH WATER, THEN WASH WITH MILD SOAP AND WATER. INGESTION: IF SWALLOWED, IF CONSCIOUS, GIVE 1-2 GLASSES OF WATER, INDUCE VOMITING AND CALL A PHYSICIAN. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS OR DROWSY PERSON.

=====
===== Fire Fighting Measures =====

Flash Point Method:TCC
Flash Point:=36.7C, 98.F
Lower Limits:1.4
Upper Limits:11.2
Extinguishing Media:CARBON DIOXIDE (CO2); DRY CHEMICAL (ABC); "ALCOHOL" FOAM; WATER FOG
Fire Fighting Procedures:IN FIRE CONDITIONS, WEAR A NIOSH/MSHA APPROVED SELF-CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE CLOTHING. COOL FIRE EXPOSED CONTAINERS WITH WATER.
Unusual Fire/Explosion Hazard:FIRE OR EXCESSIVE HEAT MAY PRODUCE HAZARDOUS DECOMPOSITION PRODUCTS; CAN REACT VIGOROUSLY WITH OXIDIZING MATERIALS. CONTAINERS EXPOSED TO INTENSE HEAT FROM FIRES SHOULD BE COOLED WITH WATER TO PREVENT VAPOR PRESSURE BUILD UP WHICH COULD RESULT IN CONTAINER RUPTURE.

=====
===== Accidental Release Measures =====

Spill Release Procedures:WEARING PROPER PROTECTIVE EQUIPMENT, PROVIDE ADEQUATE VENTILATION. ELIMINATE ALL SOURCES OF IGNITION. ABSORB IN SAND, EARTH OR VERMICULITE. CAREFULLY SWEEP UP AND REMOVE. FLUSH SPILL AREA WITH WATER. DO NOT ALLOW WASH WATER TO POLLUTE WATER WAYS AND STREAMS.

=====
===== Handling and Storage =====

Handling and Storage Precautions:KEEP AWAY FROM HEQT, SPARKS, FLAME. DO NOT STORE IN COPPER OR ITS ALLOYS. WASH THOROUGHLY AFTER HANDLING. DO NOT STORE IN ALUMINUM EQUIPMENT AT TEMPERATURES OVER 120 F.

Other Precautions:DO NOT WEAR CONTACT LENSES WHEN WORKING WITH CHEMICALS. AVOID CONTACT WITH EYES, SKIN AND CLOTHING. AVOID BREATHING VAPORS. USE WITH ADEQUATE VENTILATION. REMOVE AND WASH CONTAMINATED CLOTHING. KEEP O UT OF REACH OF CHILDREN.

===== Exposure Controls/Personal Protection =====

Respiratory Protection:IN THE LABORATORY, WORK IN VENTILATION HOOD. USE AN APPROVED ALL PURPOSE ORGANIC VAPOR CANISTER MASK FOR EMERGENCY CLEAN UP OF SPILLS, OR AN ATMOSPHERE-SUPPLYING RESPIRATOR.

Ventilation:LOCAL EXHAUST/MECHANICAL(GENERAL): RECOMMENDED.

Protective Gloves:RUBBER

Eye Protection:CHEMICAL SAFETY GLASSES

Other Protective Equipment:GOGGLES. SMOCK, APRON, PROPER GLOVES, VENTILATION HOOD, FIRE EXTINGUISHER, EYE WASH STATION.

Supplemental Safety and Health

SYNONYMS: NORMAL BUTYL ALCOHOL; 1-BUTANOL. UNIT SIZE: UP TO 20 LT. NASCO # KM00551M.

===== Physical/Chemical Properties =====

HCC:F3

Boiling Pt:=-116.7C, 242.F

Melt/Freeze Pt:=-89.C, -128.2F

Vapor Pres:4.1MM@20C

Vapor Density:2.6

Spec Gravity:0.8108@20/20C

Evaporation Rate & Reference:0.43 (N-BUAC=1)

Solubility in Water:MODERATE

Appearance and Odor:COLORLESS, MOBILE LIQUID; STRONG ODOR.

Percent Volatiles by Volume:100%

===== Stability and Reactivity Data =====

Stability Indicator/Materials to Avoid:YES

STRONG MINERAL ACIDS, STRONG OXIDIZERS, COPPER AND IT'S ALLOY.

Stability Condition to Avoid:EXCESSIVE TEMPERATURE AND HEAT.

Hazardous Decomposition Products:CARBON MONOXIDE AND UNIDENTIFIED ORGANIC COMPOUNDS.

===== Disposal Considerations =====

Waste Disposal Methods:DISPOSE OF IN AN APPROVED INCINERATOR OR CONTRACT WITH A LICENSED WASTE DISPOSAL SERVICE.

===== MSDS Transport Information =====

Transport Information:BUTANOLS, 3, UN1120, PG III.

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FISHER SCIENTIFIC,CHEMICAL DIVISION -- 1-PROPANOL (N-PROPYL ALCOHOL,(SEE SUPP DA) -- 6810-01-119-7846

=====
Product Identification
=====

Product ID:1-PROPANOL (N-PROPYL ALCOHOL, (SEE SUPP DA)
MSDS Date:06/24/1989
FSC:6810
NIIN:01-119-7846
MSDS Number: BLLCL
=== Responsible Party ===
Company Name:FISHER SCIENTIFIC,CHEMICAL DIVISION
Address:1 REAGENT LANE
City:FAIR LAWN
State:NJ
ZIP:07410
Country:US
Info Phone Num:201-796-7100
Emergency Phone Num:201-796-7100 DAY;(SEE SUPP DATA)
Preparer's Name:GASTON PILLORI (CONTACT)
CAGE:1B464

==== Contractor Identification ====

Company Name:FISHER SCIENTIFIC CO. CHEMICAL MFG DIV
Address:1 REAGENT LANE
Box:City:FAIRLAWN
State:NJ
ZIP:07410-2802
Country:US
Phone:201-796-7100
CAGE:1B464

=====
Composition/Information on Ingredients
=====

Ingred Name:N-PROPYL ALCOHOL
CAS:71-23-8
RTECS #:UH8225000
Fraction by Wt: 100%
Other REC Limits:N/K
OSHA PEL:200 PPM/250 STEL
ACGIH TLV:S,200PPM/250STEL9192

Ingred Name:FIRE FIGHT PROC:OF STOR TANK DUE TO FIRE.EXTING ONLY IF
FIRE CAN BE STOPPED.USE FLOODING AMTS OF H*2O AS FOG (SEE ING 3)
RTECS #:9999999ZZ
Other REC Limits:N/K
OSHA PEL:N/K
ACGIH TLV:N/K

Ingred Name:FIRE FIGHT PROC:& TO COOL CONTR.APPLY FROM AS FAR AWAY AS
POSS.AVOID BRTHG VAP.KEEP UPWIND.SOLID H*2O STREAM (SEE ING 4)
RTECS #:9999999ZZ
Other REC Limits:N/K
OSHA PEL:N/K
ACGIH TLV:N/K

Ingred Name:FIRE FIGHT PROC:MAY BE INEFFECTIVE.MATL TO AVOID:RUBBER
ATTACKED.STRONG OXIDIZERS (POSS FIRE & EXPLO).POSS (SEE ING 5)

RTECS #:9999999ZZ
Other REC Limits:N/K
OSHA PEL:N/K
ACGIH TLV:N/K

Ingred Name:MATL TO AVOID:VIOLENT RXN W/ POTASSIUM
TERT-BUTOXIDE.LD50-LC50 MIX:LC50 MOUSE INHAL 48 G/M3.ODOR
THRESHOLD:30 PPM.
RTECS #:9999999ZZ
Other REC Limits:N/K
OSHA PEL:N/K
ACGIH TLV:N/K

Ingred Name:SPILL PROC:UNNECESSARY PERS AWAY.ISOLATE HAZ.DENY ENTRY.EYE
PROT:SFTY GOGGLES & FACESHIELD.DO NOT WEAR CONTACT LENSES.
RTECS #:9999999ZZ
Other REC Limits:N/K
OSHA PEL:N/K
ACGIH TLV:N/K

Ingred Name:ROUTES OF ENTRY:INGESTION/SKIN/INHALATION .EYE PROT:SFTY
GOGGLES & FACESHIELD.DO NOT WEAR CONTACT LENSES.
RTECS #:9999999ZZ
Other REC Limits:N/K
OSHA PEL:N/K
ACGIH TLV:N/K

=====
===== Hazards Identification =====

LD50 LC50 Mixture:LD50 RAT ORAL 1870 MG/KG;(SEE ING 5)
Routes of Entry: Inhalation:YES Skin:YES Ingestion:YES
Reports of Carcinogenicity:NTP:NO IARC:NO OSHA:NO
Health Hazards Acute and Chronic:REPEATED OR PROLONGED EXPOSURE MAY
CAUSE DERMATITIS AND POSSIBLE CORROSION AND/OR
CONJUNCTIVITIS.INGEST/INHAL:MAY CAUSE OLIGURIA FOLLOWED BY DIURESIS
AND LIVER DAMAGE,BRAIN AND LUNG EDEMA.USE OF ALCOHOLIC BEVERAGES
MAY ENHANCE TOXIC EFFECTS.TOXIC BY SKIN ABSORPTION.

Explanation of Carcinogenicity:NONE
Effects of

Overexposure:EYES:IRRITATION, REDNESS, PAIN. SKIN:IRRITATION, REDNESS. CHRONIC:DEFAT, DRYING, CRACKING. POISONING DUE TO SKIN
ABSORPTION.INGESTION:CRAMPS, DIARRHEA, DECREASED BLOOD PRESSURE, CNS
DEPRESSION.ASPIRATION HAZARD. INHAL:IRRITATION, COUGH, SHORTNESS OF
BREATH, CNS DEPRESSION.HIGH CONCENTRATIONS:DEATH BY RESPIRATORY
FAILURE.

Medical Cond Aggravated by Exposure:PERSONS WITH PRE-EXISTING SKIN
DISORDERS, IMPAIRED LIVER, RENAL &/OR PULMONARY FUNCTION.PERSONS
SENSITIVE TO ISOPROPYL ALCOHOL MAY HAVE A CROSS-REACTION WITH
N-PROPYL ALCOHOL.

=====
===== First Aid Measures =====

First Aid:EYES:WASH IMMEDIATELY W/ H₂O OR SALINE OCCASIONALLY LIFTING LIDS
(APPROX 15-20 MIN).GET MEDICAL ATTENTION.REMOVE CONTAMINATED CLOTHING & SHOES.WASH W/
SOAP OR MILD DETERGENT & LARGE AMOUNT OF H₂O (APPROX 15-20 MIN).GET MEDICAL
ATTENTION.INGESTION:GIVE ACTIVATED CHARCOAL.GASTRIC LAVAGE MAY BE
USEFUL.GIVE OXYGEN.MAINTAIN BLOOD PRESSURE.INHALATION:MOVE TO FRESH

AIR IMMED.KEEP WARM & AT REST.IF BRTHG STOPPED,GIVE ARTF RESP.GET
MED ATTN IMMED.

=====
===== Fire Fighting Measures =====

Flash Point Method:CC
Flash Point:74F,23C
Autoignition Temp:Autoignition Temp Text:775 F
Lower Limits:2.2%
Upper Limits:13.7%
Extinguishing Media:DRY CHEM,CARBON DIOXIDE,HALON,H*2O SPRAY/ALCOHOL
FOAM.LG FIRE:H*2O SPRAY,FOG OR ALCOHOL FOAM.WATER MAY BE
INEFFECTIVE.
Fire Fighting Procedures:MOVE CONTR FROM FIRE AREA IF POSS.COOL
FIRE-EXPOS CONTR W/ H*2O FROM SIDE UNTIL WELL AFTER FIRE IS
OUT.STAY AWAY FROM STOR TANK ENDS.MASSIVE FIRE IN (SEE SUPP)
Unusual Fire/Explosion Hazard:DANGEROUS FIRE HAZ,MOD EXPLO HAZ IF EXPOS
TO HEAT/FLAME.VAP HEAVIER THAN AIR,MAY TRAVEL TO IGNIT SOURCE &
FLASH BACK.VAPOR-AIR MIX EXPLOSIVE ABOVE FLASH POINT.

=====
===== Accidental Release Measures =====

Spill Release Procedures:SHUT OFF IGNITION SOURCE.STOP LEAK IF W/O
RISK.USE WATER SPRAY TO REDUCE VAPOR.SM SPILL-TAKE UP W/ SAND OR
OTHER ABSORB MATL.PLACE IN CONTR FOR DISP.LG SPILL:DIKE FAR AHEAD
OF SPILL FOR LATER DISP.NO SMKNG/FLAME/FLARES IN HAZ AREA.KEEP
(SEE ING 6)
Neutralizing Agent:N/K

=====
===== Handling and Storage =====

Handling and Storage Precautions:OBSERVE ALL FED,STATE & LOCAL REGS
WHEN STORING OR DISPOSING OF THIS SUBSTANCE.CONTACT THE DISTRICT
DIRECTOR OF THE EPA.STORE IAW 29 CFR 1910.106.
Other Precautions:STORE AWAY FROM INCOMPATIBLE SUBSTANCES.BONDING &
GROUNDING:SUBSTANCES WITH LOW ELECTROCONDUCTIVITY,WHICH MAY BE
IGNITED BY ELECTROSTATIC SPARKS,SHOULD BE STORED IN CONTR MEETING
NFPA 77-1983 REC PRAC TICE ON STATIC ELECTRICITY.

=====
===== Exposure Controls/Personal Protection =====

Respiratory Protection:THE SPECIFIC RESPIRATOR SELECTED MUST BE BASED
ON CONTAMINATION LEVELS IN THE WORKPLACE AND BE JOINTLY APPROVED BY
NIOSH/MSHA.
Ventilation:PROVIDE GENERAL DILUTION VENTILATION TO MEET PUBLISHED
EXPOSURE LIMITS.VENTILATION EQUIPMENT MUST BE EXPLOSION-PROOF.
Protective Gloves:WEAR APPROP GLOVES TO PVNT SKIN CONTACT.
Eye Protection:SPLASH-PROOF/DUST-RESISTANT (SEE ING 7)
Other Protective Equipment:WEAR APPROP IMPERVIOUS CLTHG & EQUIP TO PVNT
RPTD/PRLNG SKIN CONT.IF EYE/SKIN CONT POSS:EYE WASH,QUICK DRENCH
SHOWER.
Work Hygienic Practices:N/K
Supplemental Safety and Health
PART NO:ETHYL CARBINOL).EMER PHONE NO:201-796-7523 (NIGHT);800-429-9300
(CHEMTREC).SOLUBLE IN ETHANOL,ETHYL ETHER,ACETONE,BENZENE.FIRE
FIGHT PROC:STOR AREA-USE UNMANNED HOSE HOLDER/MONITOR NOZZ,ELSE W
ITHDRAW FROM AREA & LET FIRE BURN.WITHDRAW IMMED IF RISING SOUND

FROM VENTING SFTY DEVICE/ANY DISCOLORATION (SEE ING 2)

===== Physical/Chemical Properties =====

Boiling Pt:B.P. Text:207F,97C
Melt/Freeze Pt:M.P/F.P Text:-195F,-126C
Decomp Temp:Decomp Text:N/K
Vapor Pres:15 MMHG
Vapor Density:2.1,AIR=1
Spec Gravity:0.8053 (H*20=1)
Viscosity:2.256CP AT20C
Evaporation Rate & Reference:1.3,BUTYL ACETATE=1
Solubility in Water:SOLUBLE
Appearance and Odor:COLORLESS LIQUID;MILD ALCOHOL-LIKE,SLIGHTLY
STUPEFYING ODOR.

===== Stability and Reactivity Data =====

Stability Indicator/Materials to Avoid:YES
REACTS VIOLENTLY W/ ALKALI & ALKALINE EARTH METALS GENERATING HIGHLY
FLAMM HYDROGEN GAS.COATINGS,PLASTICS & (SEE ING 4)
Stability Condition to Avoid:HEAT,SPARKS,FLAME.
Hazardous Decomposition Products:THERMAL DECOMPOSITION PRODUCTS MAY
INCLUDE TOXIC OXIDES OF CARBON.
Conditions to Avoid Polymerization:HAZARDOUS POLYMERIZATION HAS NOT
BEEN REPORTED TO OCCUR UNDER NORMAL TEMPERATURES AND PRESSURES.

===== Disposal Considerations =====

Waste Disposal Methods:DISP MUST BE IAW FED,STATE & LOC
REGS.COORDINATION W/ SUPPORTING INSTALLATION &/OR MACOM
ENVIRONMENTAL COORDINATION PRIOR TO DISP IS REC TO DETERMINE APPROP
DISP METH .FOR ASSISTANCE,CONTACT THE DISTRICT DIRECTOR OF THE
ENVIRON PROT AGENCY.

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