

Safety Data Sheet

Carnoy's Fluid

Section 1 - Chemical Product and Company Identification

SDS Name: Carnoy's Fluid

Catalog Numbers: F-60

Company Identification: Transene Company, Inc., DBA ROWLEY BIOCHEMICAL, Inc.
10 ELECTRONICS AVENUE
DANVERS, MA 01923

For information, call: 978-739-4883

Emergency Number: 800-424-9300

For CHEMTREC assistance, call: 800-424-9300

Section 2 - Hazards Identification

GHS Classifications

H225-Flammable Liquids: 2

H290-Corrosive to metals: 1

H302-Acute toxicity, oral: 4

H314-Skin corrosion/irritation: 1A

H318-Serious eye damage/eye irritation: 1

H332-Acute toxicity, inhalation: 4

H336-Specific target organ toxicity, single exposure; Narcotic effects: 3

H351-Carcinogenicity: 2

H361-Reproductive toxicity: 2

H370-Specific target organ toxicity, single exposure: 1

H372-Specific target organ toxicity, repeated exposure: 1

H402-Hazardous to the aquatic environment, acute toxicity: 3

Pictograms or Hazard symbols and Hazard Statement(s):



Signal Word: Danger

Hazard Statements:

H225-Highly flammable liquid and vapour

H290-May be corrosive to metals

H302-Harmful if swallowed
H314-Causes severe skin burns and eye damage
H318-Causes serious eye damage
H332-Harmful if inhaled
H336-May cause drowsiness or dizziness
H351-Suspected of causing cancer
H361-Suspected of damaging fertility or the unborn child
H370-Causes damage to organs (target organs: respiratory system, central nervous system, optic nerve)
H372-Causes damage to organs through prolonged or repeated exposure (target organs: heart, liver, kidney, spleen, blood, reproductive system)
H402-Harmful to aquatic life

Precautionary Statements:

P201-Obtain special instructions before use.
P202-Do not handle until all safety precautions have been read and understood.
P210-Keep away from heat, hot surfaces, sparks, open flames, and other ignition sources. No smoking.
P233-Keep container tightly closed.
P234-Keep only in original packaging.
P240-Ground and bond container and receiving equipment.
P241-Use explosion-proof electrical/ventilating/lighting/equipment.
P242-Use non-sparking tools.
P243-Take action to prevent static discharges.
P260-Do not breathe dust/fume/gas/mist/vapours/spray.
P261-Avoid breathing dust/fume/gas/mist/vapours/spray.
P264-Wash thoroughly after handling.
P270-Do not eat, drink, or smoke when using this product.
P271-Use only outdoors or in a well-ventilated area.
P273-Avoid release to the environment.
P280-Wear protective gloves/protective clothing/eye protection/face protection.
P301+P312-If swallowed: Call a Poison Center/doctor if you feel unwell.
P301+P330+P331-If swallowed: Rinse mouth. Do NOT induce vomiting.
P302+P352-If on skin: Wash with plenty of soap and water.
P303+P361+P353-If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304+P340-If inhaled: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338-If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308+P311-If exposed or concerned: Call a Poison Center/doctor.
P308+P313-If exposed or concerned: Get medical advice/attention.
P310-Immediately call a Poison Center/doctor.
P312-Call a Poison Center/doctor if you feel unwell.
P314-Get medical advice/attention if you feel unwell.
P330-Rinse mouth.
P362+P364-Take off contaminated clothing and wash it before reuse.
P363-Wash contaminated clothing before reuse.
P370+P378-In case of fire: Use dry chemical, carbon dioxide, dry sand, water spray, or alcohol-resistant foam to extinguish.
P390-Absorb spillage to prevent material damage.
P403+P233-Store in a well-ventilated place. Keep container tightly closed.
P403+P235-Store in a well-ventilated place. Keep cool.
P405-Store locked up.
P406-Store in corrosion resistant container with a resistant inner liner.

P501-Dispose of contents/container in accordance with local/regional/national/international regulations.

Section 3 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent
64-17-5	Ethyl alcohol	58.5 v/v
67-56-1	Methyl alcohol	3 v/v
67-66-3	Chloroform	28.5 v/v
64-19-7	Acetic Acid	10 v/v

Section 4 - First Aid Measures

Eye Exposure: In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Get immediate medical attention.

Dermal Exposure: In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Get immediate medical attention.

Oral Exposure: If swallowed, get immediate medical attention. Rinse mouth with water. Do not induce vomiting.

Inhalation Exposure: If inhaled, remove to fresh air. Get immediate medical attention.

Section 5 - Fire Fighting Measures

General Information: Containers can build up pressure if exposed to heat and/or fire. 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. Flammable Liquid. Can release vapors that form explosive mixtures at temperatures above the flashpoint. Use water spray to keep fire-exposed containers cool. Containers may explode in the heat of a fire.

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. Use water spray to cool fire-exposed containers. Water may be ineffective. Do NOT use straight streams of water.

Hazardous Decomposition Products: Carbon oxides, formaldehyde, phosgene, hydrogen chloride gas, irritating and toxic fumes and gases.

Flash Point: Not available

Autoignition Temperature: Not available

Explosion Limits, Lower: Not available

Upper: Not available

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

Note: Static discharge could act as an ignition source.

Section 6 - Accidental Release Measures

Procedure(s) of Personal Precaution(s):

Wear personal protective equipment. Do not ingest or inhale. Do not get on skin or clothing. Do not get in eyes. Ensure adequate ventilation. Keep away from heat, hot surfaces, sparks, open flames. Eliminate all sources of ignition.

Methods for Cleaning up: Absorb with inert material such as sand, earth, or vermiculite. Do NOT absorb with combustible material such as saw dust or cellulosic material. Carefully sweep up and containerize for proper disposal. Use only non-sparking tools. Use explosion-proof equipment and take precautionary measures against static discharges. Do not release to the environment. Do not release to drains.

Section 7 - Handling and Storage

Use care when handling. Wash thoroughly after handling. Wear personal protective equipment. Use with adequate ventilation. Do not ingest or inhale. Do not get on skin or clothing. Do not get in eyes. Store in a tightly closed non-metal container in a cool, dry, and well-ventilated area. Take precautionary measures against static discharges. Use spark-proof tools and explosion-proof equipment. Use proper grounding procedures to avoid static electricity. Protect from heat. Protect from air and moisture. Keep away from heat, hot surfaces, flames, sparks, and other ignition sources. Keep away from incompatible materials. Vapors heavier than air, may travel considerable distance and ignite or explode.

Note: Static discharge could act as an ignition source.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Use explosion-proof ventilation equipment. 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.

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: 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.

Exposure Limits:

Chemical Name	ACGIH - TLV	NIOSH - DILH	OSHA - Final PELs
Ethyl Alcohol CAS#64-17-5	1000 ppm TWA	1000 ppm TWA 1900 mg/m ³ TWA 3300 ppm IDLH	1000 ppm TWA 1900 mg/m ³ TWA
Methyl Alcohol CAS#67-56-1	200 ppm TWA 250 ppm STEL	200 ppm TWA 260 mg/m ³ TWA 250 ppm STEL 325 mg/m ³ STEL 6000 ppm IDLH	200 ppm TWA 260 mg/m ³ TWA
Chloroform CAS#67-66-3	10 ppm TWA	2 ppm STEL 9.78 mg/m ³ STEL 500 ppm IDLH	50 ppm Ceiling 240 mg/m ³ Ceiling
Glacial Acetic Acid CAS#64-19-7	10 ppm TWA 15 ppm STEL	10 ppm TWA 25 mg/m ³ TWA 15 ppm STEL 37 mg/m ³ STEL 50 ppm IDLH	10 ppm TWA 25 mg/m ³ TWA

OSHA Vacated PELs: Ethyl Alcohol: 1000 ppm TWA; 1900 mg/m³ TWA
Methyl Alcohol: 200 ppm TWA; 260 mg/m³ TWA; 250 ppm STEL;
325 mg/m³ STEL
Chloroform: 2 ppm TWA; 9.78 mg/m³ TWA
Glacial Acetic Acid: 10 ppm TWA; 25 mg/m³ TWA

Section 9 - Physical and Chemical Properties
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Physical State: Liquid
Appearance: Clear, colorless
Odor: Alcohol-Chloroform
Vapor Pressure: Not available
Odor Threshold: Not available
Vapor Density: Not available
pH: 1.53-2.95
Relative Density: Not available
Melting point/freezing point: Not available
Solubility: Soluble in water
Boiling Point: Not available
Flash Point: Not available
Evaporation Rate: Not available
Flammability (solid, gas): Not available
Partition coefficient: n-octanol/water: Not available
Autoignition Temperature: Not available
Decomposition Temperature: Not available
Viscosity: Not available
Specific Gravity/Density: Not available

Section 10 - Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures.

Conditions to Avoid: Incompatible materials, ignition sources, excess heat, flames, sparks, hot surfaces, and oxidizers. Exposure to air or moisture. Avoid direct sunlight.

Incompatibilities with Other Materials: Strong oxidizing agents, acids, strong bases, metals, alkali metals, ammonia, hydrazine, peroxides, sodium, acid anhydrides, calcium hypochlorite, chromyl chloride, nitrosyl perchlorate, bromine pentafluoride, perchloric acid, silver nitrate, mercuric nitrate, potassium-tert-butoxide, magnesium perchlorate, acid chlorides, platinum, uranium hexafluoride, silver oxide, iodine heptafluoride, acetyl bromide, disulfuryl difluoride, tetrachlorosilane + water, acetyl chloride, permanganic acid, ruthenium (VIII) oxide, uranyl perchlorate, potassium dioxide, rubber, various plastics, aluminum, acetone, chromic acid, ethylene glycol, nitric acid, phosphorous trichloride, sodium peroxide, strong caustics, carbonates, hydroxides, oxides, and phosphates.

Hazardous Decomposition Products: Carbon oxides, formaldehyde, phosgene, hydrogen chloride gas, irritating and toxic fumes and gases.

Section 11 - Toxicological Information

CAS#64-17-5 Ethyl Alcohol: RTECS#: KQ6300000

LD50 Oral: 10470 mg/kg (rat)

LD50 Dermal: Not available

LC50 Inhalation: 124.7 mg/L 4h (rat)

Tumorigen, mutagen, reproductive effector per RTECS.

Draize test, rabbit, eye: 500 mg/24h Mild Irritant.

Skin: Repeated exposure may cause skin dryness or cracking.

Ethyl Alcohol overexposure may lead to headache, dizziness, tiredness, nausea, and vomiting.

Carcinogenicity: Ethyl Alcohol CAS#64-17-5 is not listed by OSHA. Ethyl Alcohol is listed by IARC (Group 1, Carcinogenic to Humans), NTP (Known Carcinogen), and ACGIH (A3, Animal Carcinogen). Ethyl Alcohol is listed by California Prop. 65 as a developmental carcinogen (alcoholic beverages only).

CAS#67-56-1 Methyl Alcohol: RTECS#: PC1400000

LD50 Oral: 100.1 mg/kg (expert judgement)

LD50 Dermal: 300.1 mg/kg (expert judgement)

LC50 Inhalation: 3.1 mg/L 4h (expert judgement)

Mutagen, reproductive effector per RTECS.

Draize test, rabbit, eye: 100 mg/24h Moderate Irritant.

Draize test, rabbit, skin: 20 mg/24h Moderate Irritant.

Carcinogenicity: Methyl Alcohol CAS#67-56-1 is not listed by IARC, NTP, ACGIH, or OSHA. Methyl Alcohol is listed by California Prop. 65 as a developmental carcinogen.

CAS#67-66-3 Chloroform: RTECS#: FS9100000

LD50 Oral: 908 mg/kg (rat)

LD50 Dermal: >20 g/kg (rabbit)

LC50 Inhalation: 10.5 mg/L 4h (rat)

Carcinogenicity: Chloroform CAS#67-66-3 is listed by IARC (Group 2B, Possibly Carcinogenic to Humans), NTP (Reasonably Anticipated to be a Human Carcinogen), ACGIH (A3, Animal Carcinogen), and California Prop. 65 as a developmental carcinogen.

CAS#64-19-7 Glacial Acetic Acid: RTECS#: AF1225000

LD50 Oral: 3310 mg/kg (rat)

LD50 Dermal: 1060 mg/kg (rabbit)

LC50 Inhalation: 11.4 mg/L 4h (rat)

Mutagen, reproductive effector per RTECS.

Skin corrosion/irritation: skin (rabbit), causes severe burns.

Serious eye damage/eye irritation: eyes(rabbit), corrosive to eyes, causes serious eye damage.

Carcinogenicity: Glacial Acetic Acid CAS#64-19-7 is not listed by IARC, NTP, ACGIH, OSHA, or California Prop. 65.

Information on the likely routes of exposure: Routes of entry anticipated: oral, dermal, inhalation, and eye.

Epidemiology: Not available.

Teratogenicity: Not available.

Reproductive Effects: Ethyl Alcohol and Methyl Alcohol are reproductive effectors per RTECS. Chloroform is suspected of damaging fertility or the unborn child.

Developmental Effects: Substances known to cause developmental toxicity in humans. Component substances are listed on California Prop. 65 as developmental carcinogen.

Neurotoxicity: Not available.

Mutagenicity: Chloroform is suspected of causing cancer. Ethyl Alcohol and Methyl Alcohol are mutagens per RTECS.

Specific Target Organ Toxicity, Single Exposure: Respiratory system, central nervous system, optic nerve. May cause drowsiness or dizziness.

Specific Target Organ Toxicity, Repeated Exposure: Heart, liver, kidney, spleen, blood, reproductive system.

Symptoms associated with exposure: Exposure can defat the skin resulting in rough, chapped skin including irritation, cracking, and/or dermatitis. Eye contact may result in corneal damage, blindness, pain, irritation, watering, redness, blurred or double vision. Overexposure may lead to headache, dizziness, tiredness, nausea, vomiting, cough, irritant effects, shortness of breath, stomach/intestinal disorders, cardiovascular disorders, decreases in blood pressure, cardiac effects, impaired locomotor coordination. Symptoms may be delayed. Suspected of causing cancer. Suspected of damaging fertility or the unborn child. Causes damage to organs if in contact with skin, eyes, if swallowed or if inhaled.

The toxicological properties of this material have not been thoroughly investigated.

Section 12 - Ecological Information

Ecotoxicity: Do not release to the environment. Do not release to drains. Harmful to aquatic life. May cause long-term adverse effects to the environment.

CAS#64-17-5 Ethyl Alcohol:

EC50, freshwater algae: 275 mg/L 72h (chlorella vulgaris)
LC50, freshwater fish: 14200 mg/L 96h (pimephales promelas)(fathead minnow)
EC50, water flea: 9268 mg/L 48h
EC50, water flea: 10800 mg/L 24h
EC50, microtox: 34634 mg/L 30min (photobacterium phosphoreum)
EC50, microtox: 35470 mg/L 5min (photobacterium phosphoreum)

CAS# 67-56-1 Methyl Alcohol:

LC50, freshwater fish: 15400 mg/L 96h flow-through (Iepomis macrochirus)(bluegill)
LC50, freshwater fish: 19000 mg/L 96h (oncorhynchus mykiss)(rainbow trout)
EC50, water flea: 18260 mg/L 96h semi-static (daphnia magna)
ErC50, algae: 22000 mg/L 96h static (pseudokirchneriella subcapitata)(green algae)
IC50, bacteria: >1000 mg/L 3h (activated sludge)

CAS#67-66-3 Chloroform:

LC50, freshwater fish: 300 mg/L 96h static (poecilia reticulata)
LC50, freshwater fish: 18 mg/L 96h flow-through (Iepomis macrochirus)
EC50, freshwater algae: 560 mg/L 48h
EC50, water flea: 28.9 mg/L 48h
EC50, microtox: 520 mg/L 5min (photobacterium phosphoreum)

CAS#64-19-7 Glacial Acetic Acid:

LC50, freshwater fish: 88 mg/L 96h (pimephales promelas)
LC50, freshwater fish: 75 mg/L 96h (Iepomis macrochirus)
EC50, water flea: 95 mg/L 24h
EC50, microtox: 8.8 mg/L 5min (photobacterium phosphoreum)

Persistence and degradability: Not available.

Bio-accumulative potential: Not available.

Mobility: Will likely be mobile in the environment due to its volatility and water solubility.

Section 13 - Disposal Considerations

DISPOSAL: Dispose of in accordance with all federal, state, and local regulations.

Section 14 – Transport Information

DOT

Proper shipping name: Flammable Liquid, Toxic, Corrosive, N.O.S. (SD Alcohol, Chloroform & Acetic Acid Solution)

UN 3286

PG II

Hazard class 3, (6.1),(8)

Section 15 - Regulatory Information

Canada Regulatory Information

WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR, and the SDS contains all the information required by the CPR.

Section 16 - Additional Information

SDS Creation Date: 10/20/12

Revision #1: 1/31/2014 YM-Co-sign RC/DKG

Revision #2: 1-4-19

Revision #3: 2-21-23

Revision #4: 1-5-26

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