

# SAFETY DATA SHEET EDS Substrate Shuttle

Revision date: 6/23/2022  
Version 1.2



## 1. PRODUCT AND COMPANY IDENTIFICATION

### 1.1 Product Identifier

Product Name: EDS Substrate Shuttle

Synonyms: Isopropanol, Isopropyl Alcohol, 2-Propanol, sec-propyl alcohol, dimethylcarbinol, Rubbing alcohol, IPA

Other means of identification: CAS# 67-63-0  
EINECS# 200-661-7

Product Form: Liquid

### 1.2 Recommended use of the chemical and restrictions on use

Recommended Use: General use organic solvent; remediation of contaminated groundwater and soils.  
Restrictions on Use: Use as recommended by the label

### 1.3 Details of the supplier and of the safety data sheet

Supplier: Tersus Environmental, LLC  
1116 Colonial Club Rd  
Wake Forest, NC 27587  
Phone: +1-919-453-5577  
Email: [info@tersusenv.com](mailto:info@tersusenv.com)

### 1.4 Emergency telephone number

For leak, fire, spill or accident emergencies, call:

+1-919-453-5577 (Tersus Office Hours, 8:00 AM to 5:00 PM Eastern)  
+1-919-638-7892 (Tersus Outside office hours)  
+1-800-424-9300 (Chemtrec 24 Hour Service – Emergency Only)

## 2. HAZARD IDENTIFICATION

### 2.1 Hazard/Emergency Overview

**Highly Flammable in the Liquid and Vapor Phase. Can Cause Severe Eye Irritation!**

### 2.2 OSHA Hazards

Flammable Liquid, Target organ effect, Irritant

### 2.3 Target Organs

Cardiovascular system, gastrointestinal tract, kidney, liver, nerves

### 2.4 GHS label elements (including precautionary statements)



**2.5 Signal Word****DANGER!****2.6 Hazard Statement(s)**

H225 Highly flammable liquid and vapor  
 H319 Causes serious eye irritation  
 H336 May cause drowsiness or dizziness

**2.7 Precautionary Statement(s)**

P261 Avoid breathing dust/fumes/gas/mist/vapors  
 P312 Call a POISON CENTER or doctor/physician if you feel unwell  
 P501 Dispose of contents and container to an approved waste disposal plant  
 P240 Ground/bond container and receiving equipment  
 P337 + P313 If eye irritation persists: Get medical attention  
 P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Seek medical attention.  
 P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.  
 P303 + P361 + P353 IF ON SKIN (or hair): Remove immediately all contaminated clothing. Rinse skin with water.  
 P370 + P378 In case of fire: Use dry sand, dry chemical, or alcohol-resistant foam for extinction.  
 P210 Keep away from heat, sparks, open flames and hot surfaces. No smoking.  
 P233 Keep container tightly closed  
 P102 Keep out of reach of children  
 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  
 P243 Take precautionary measures against static discharge  
 P241 Use explosion-proof electrical, ventilating and lighting equipment  
 P242 Use only non-sparking tools  
 P271 Use only outdoors or in a well-ventilated area  
 P264 Wash hands thoroughly after handling  
 P280 Wear protective gloves and eye and face protection

**2.8 GHS Classification(s)**

Eye Irritation (Category 2)  
 Flammable Liquids (Category 2)  
 Specific Target Organ Toxicity Single Exposure (Category 3)

**2.8.1 Other hazards which do not result in classification: Potential**

**2.9 Health Effects:**

Organ	Effect
Eyes	Can cause irritation to the eyes
Ingestion	Can be harmful if ingested
Inhalation	Can be harmful if inhaled. Can cause respiratory tract irritation. Vapors may cause drowsiness and dizziness.
Skin	Can cause irritation if absorbed through skin

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

**3.1 Chemical Identity:** Isopropyl Alcohol

**3.1.1 CAS #:** 67-63-0  
**3.1.2 EINECS #:** 200-661-7  
**3.1.3 ICSC #:** 0554  
**3.1.4 RTECS #:** NT8050000  
**3.1.5 UN #:** 1219  
**3.1.6 EC #:** 603-117-00-0

% Weight	Material	CAS
75 to 100	Isopropyl Alcohol	67-63-0

Synonyms are provided in Section 1.

Occupational exposure limits, if available, are listed in Section 8.

### 4. FIRST AID MEASURES

**4.1 General Information**

Take proper precautions to ensure your own health and safety before attempting rescue and providing first aid. Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

**4.2 Eye Contact**

Thoroughly flush the eyes with large amounts of clean low-pressure water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Seek medical attention

**4.3 Inhalation**

Remove person to fresh air. If signs/symptoms continue, get medical attention. Give oxygen or artificial respiration as needed.

**4.4 Ingestion**

NEVER give anything by mouth to an unconscious person. If vomiting does occur, have victim lean forward to prevent aspiration. Rinse mouth with water. Immediately have victim drink several glasses of water to dilute. Seek medical attention.

**4.5 Indication of any immediate medical attention and special treatment needed**

If exposed or concerned, get medical advice and attention.

### 5. FIRE-FIGHTING MEASURES

**5.1 Suitable Extinguishing Media**

CO<sub>2</sub>, Dry Chemical, Alcohol-resistant Foam, and/or H<sub>2</sub>O (water fog)

**5.2 Specific Hazards Arising from the Chemicals, or Chemical Mixtures**

Carbon oxides expected to be the primary hazardous combustion product

**5.3 Specific Hazards Involving Fire or**

**Combustion****5.3.1 Special Protective Equipment and Precautions for Fire Fighters**

Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes. Keep unopened containers cool by spraying with water. Use with caution, and be aware that water runoff can lead to environmental damage. Dike and collect the water used to fight the fire.

**5.3.2 Unusual Fire and Explosion Hazards**

Vapors may travel to source of ignition and flash back. For container storage and ignition specifics, do not pressurize, cut, weld, braze, solder, drill, grind, or expose containers to heat, flames, static, or any other potential forms of ignition.

**5.3.3 Flammable Properties**

Classification	OSHA/NFPA Class IB Flammable Liquid
Flash Point	12° C (53°F) – closed cup
Autoignition temp.	399° C (750°F)

## 6. ACCIDENTAL RELEASE MEASURES

**6.1 Personal Precautions**

Do not inhale vapors, mist, or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas (make sure said safe areas are upwind of the spill). Beware of vapors accumulating to form explosive concentrations.

Vapors can accumulate in low areas. A vapor suppressing foam may be brought in to help with this potential accumulation. However, this should only be done if the vapor has ignited (otherwise use water fog spray).

**6.2 Environmental Precautions**

Stop leak. Contain spill if possible and safe to do so. Prevent product from entering drains.

**6.3 Methods for Containment and Clean Up**

Contain spill, then collect with an electrically protected vacuum cleaner, by wet-brushing, or by using an inert material (like dry sand or earth) and put material into a chemical waste disposal container. Keep chemical waste container closed.

## 7. HANDLING AND STORAGE

**7.1 Figures Regarding Safe Handling and Storage**

There is to be no smoking, eating, or drinking with in the same location as where the containers are to be stored.

**7.2 Precautions for Safe Handling**

Do not get on skin or in eyes. Do not inhale vapors or mist. Keep away from sources of ignition-no smoking. Take measures to prevent the buildup of electrostatic charge.

**7.3 Hygiene Measures**

Handle in accordance with good industrial hygiene and safety procedures. Use good personal hygiene practices.

**7.4 Conditions for Safe Storage, Including Any Incompatibilities**

Keep container firmly closed in a cool, dry and well-ventilated place (this will prevent excess pressure from building up). However, when opening these containers, make sure to open them to slowly, allowing all excess air and gas pressure to be released before the container is opened entirely. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

## 8. EXPOSURE CONTROL / PERSONAL PROTECTION

**8.1 Control parameters****8.1.1 Occupational Exposure Limits**

Component	Source	Type	Value	Note
Isopropyl Alcohol	US (OSHA)	TWA	400 ppm	N/A
Isopropyl Alcohol	US (ACGIH)	TWA	200 ppm	N/A
Isopropyl Alcohol	US (ACGIH)	STEL	400 ppm	N/A

**8.2 Exposure Control****8.2.1 Protective equipment****8.2.2 Appropriate engineering controls**

General room or local exhaust ventilation is usually required to meet exposure limit(s). Electrical equipment should be grounded and conform to applicable electrical code.

**8.2.3 Eye/face protection**

Use chemical safety goggles and/or a full-face shield where splashing is possible. Use equipment approved by appropriate government standards, such as NIOSH (US) or EN166 (EU). Maintain eye wash fountain and quick-drench facilities in work area.

**8.2.4 Respiratory protection**

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

**8.2.5 Hand protection**

Handle with gloves. Gloves must be inspected prior to use. Use proper

glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

### 8.2.6 Other skin and body protection

Wear impervious, flame retardant, antistatic protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

### 8.2.7 Hygiene measures

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on basic physical and chemical properties

Appearance ( <i>physical state, color, etc.</i> )	Liquid. Colorless.
Odor	Specific data not available
Odor threshold	Specific data not available
pH	Specific data not available
Freezing point	-90° C (-130° F)
Initial boiling point and boiling range	83°C (181°F)
Flash point	12°C (54 (53.6)°F) – Closed cup
Evaporation rate	2.88 (n-Bu acetate = 1)
Flammability (solid, gas)	Flammable
Upper / Lower flammability or explosive limits	12.7% (V) / 2.0%(V)
Vapor pressure	4.4 kPa at 20°C (68°F)
Vapor density	2.08 where air = 1 at 20°C (68°F)
Relative density	0.790 g/cm <sup>3</sup> at 25°C (77°F)
Solubility(ies)	Miscible
Partition coefficient n-octanol/water(ies)	Log Pow: 0.05
Auto-ignition temperature	399°C (750°F)
Decomposition temperature	Specific data not available
Formula (ISOPROPYL ALCOHOL)	C <sub>3</sub> H <sub>8</sub> O
Molecular weight (ISOPROPYL ALCOHOL)	60.1 g/mol

## 10. STABILITY AND REACTIVITY

### 10.1 Chemical Stability

#### 10.2 Possibility of Hazardous Reactions

Vapors may form explosive mixture with air

#### 10.3 Conditions to avoid (e.g., static)

Heat, flames and spark. Extreme temperatures

#### 10.4 Incompatible materials

Caustics, inorganic acids, chlorinated

#### 10.5 Hazardous decomposition products

Carbon oxides are expected to be, under fire conditions, the primary hazardous decomposition

## 11. TOXICOLOGICAL INFORMATION

### 11.1 Product Summary

Long term exposure (2 years) to Isopropyl Alcohol via inhalation at concentrations up to 5000 ppm caused to exposure related increases in tumors in animals. No data available for the teratogenicity, mutagenicity, or reproductive toxicity of this product. No data available to designate the product as causing specific target organ toxicity through repeated exposure. No data available to designate product as an aspiration hazard.

### 11.2 Acute Toxicity

LC50 Inhalation	Rat	16,000 mg/kg	8 hours
LD50 Dermal	Rabbit	12,800 mg/kg	
LD50 Oral	Rat	5,045 mg/kg	Behavioral abnormalities observed such as altered sleep time and decreased activity

### 11.3 Irritation

#### 11.3.1 Eyes

Rabbit - Irritating to eyes 24 hours

#### 11.3.2 Eyes (ISOPROPANOL)

Mildly irritating to the eye at an airborne concentration of 400 ppm, unpleasant at 800 ppm

#### 11.3.3 Respiratory or Skin Sensitization

No data available

#### 11.3.4 Skin

Rabbit - mild skin irritation

#### 11.3.5 Specific Target Organ Toxicity. Single Exposure (Globally Harmonized System)

Inhalation - May cause drowsiness or dizziness - central nervous system

### 11.4 Carcinogenicity

**11.4.1 IARC:** Group 3: Not classifiable as to its carcinogenicity to humans.

**11.4.2 ACGIH:** No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

**11.4.3 NTP:** No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

**11.4.4 OSHA:** No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

### 11.5 Other Hazards

#### Exposure Description

**11.5.1 Eyes** Produces irritation, characterized by a burning sensation, redness, tearing, inflammation, and possible corneal injury. May cause transient corneal injury.

- 11.5.2 Ingestion** Causes gastrointestinal irritation with nausea, vomiting and diarrhea. May cause kidney damage. 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.
- 11.5.3 Inhalation (or Lungs)** Inhalation of high concentrations may cause central nervous system effects characterized by nausea, headache, dizziness, unconsciousness, and coma. May cause narcotic effects in high concentration. Causes upper respiratory tract irritation. Inhalation of vapors may cause drowsiness and dizziness. Aspiration of material into the lungs may cause chemical pneumonitis, which may be fatal. The probable oral lethal dose in humans is 240 ml (2696 mg/kg), but ingestion of only 20 ml (224 mg/kg) has caused poisoning.
- 11.5.4 Skin** May cause irritation with pain and stinging, especially if the skin is abraded. Isopropanol has a low potential to cause allergic skin reactions; however, rare cases of allergic contact dermatitis have been reported. May be absorbed through intact skin. Dermal absorption has been considered toxicologically insignificant.

## 12. ECOLOGICAL INFORMATION

### 12.1 Ecotoxicity (aquatic and terrestrial, where available)

#### **12.1.1 Acute Fish Toxicity**

LD50 / 96 hours Pimephales promelas: 9,640 mg/L

#### **12.1.2 Toxic to Daphnia and Other Aquatic Invertebrates**

EC50 / 24 h / Water Flea – 5,102 mg/L

#### **12.1.3 Toxicity to Aquatic Plants**

EC50 / 72 hours Desmodemus subspicatus > 2,000 mg/L

#### **12.1.4 Toxicity to Daphnia and other aquatic invertebrates**

Immobilization EC50 / 24 h / Water Flea - 6,851 mg/L

#### **12.1.5 Persistence and degradability**

No data available

#### **12.1.6 Bioaccumulative potential**

No data available

#### **12.1.7 Other adverse effects**

No data available

## 13. DISPOSAL CONSIDERATIONS

### 13.1 Waste Disposal Methods

Dispose according to federal, state and local laws. Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Authority. Waste is suitable for incineration. For other information, please section 6.3 methods for containments and clean up.

## 14. TRANSPORTATION INFORMATION

### 14.1 U.S. (D.O.T.)

Proper Shipping Name: Isopropanol



Hazard Class:	Class 3
Packing Group:	II
UN/NA:	1219
Labels:	Flammable Liquid

**14.2 IMDG**

Proper Shipping Name:	ISOPROPANOL
Hazard Class:	Class 3
Packing Group:	II
UN/NA:	1219
EMS-No:	F-E, S-D
Marine pollutant:	No

**14.3 IATA**

Proper Shipping Name:	Isopropanol
Hazard Class:	Class 3
Packing Group:	II
UN/NA:	1219

**15. REGULATORY INFORMATION****15.1 OSHA Hazards**

Flammable liquid, Target Organ Effect, Irritant

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

Country	Notification
Australia	AICS
Canada	DSL
China	IECS
European Union	EINECS
Japan	ENCS/ISHL
Korea	ECL
New Zealand	NZIoC
Philippines	PICCS
United States of America	TSCA

**15.2 SARA 302 Components**

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

**15.3 SARA 313 Components**

The following components are subject to reporting levels established by SARA Title III, Section 313: ISOPROPYL ALCOHOL (CAS# 67-63-0) Revision date: 1987-01-01

**15.4 SARA 311/312 Hazards Acute Health Hazard**

Chronic Health Hazard Fire Hazard

**15.5 CERCLA**

No chemicals in this material with known CAS numbers are subject to the reporting requirements of CERCLA

**15.6 Massachusetts Right to Know Components**

Isopropyl Alcohol CAS-No. 67-63-0 Revision Date 1987-01-01

**15.7 Pennsylvania Right to Know Components**

Isopropyl Alcohol CAS-No. 67-63-0 Revision Date 1987-01-01 New Jersey Right to Know Components  
Isopropyl Alcohol CAS-No. 67-63-0 Revision Date 1987-01-01

### **15.8 California Prop 65 Components**

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

## **16. OTHER INFORMATION**

### **16.1 HMIS Rating**

### **16.2 NFPA**



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**End of Safety Data Sheet**