

SAFETY DATA SHEET

1. SUBSTANCE AND SOURCE IDENTIFICATION

Product Identifier

SRM Number: 2890
SRM Name: Water Saturated 1-Octanol
Other Means of Identification: Not applicable.

Recommended Use of This Material and Restrictions of Use

This Standard Reference Material (SRM) is intended primarily for use in validating methods and calibrating instruments for the measurement of trace concentration levels of water. SRM 2890 is a solution of water saturated 1-octanol which is certified for its water content. A unit of SRM 2890 consists of five 5 mL ampoules, each containing approximately 2 mL of water saturated 1-octanol.

Company Information

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2. HAZARDS IDENTIFICATION

Classification

Physical Hazard: Flammable Liquid Category 4
Health Hazard: Eye Damage/Irritation Category 2A

**Label Elements
 Symbol**



**Signal Word
 WARNING**

Hazard Statement(s)

H227 Combustible liquid.
 H319 Causes serious eye irritation.

Precautionary Statement(s)

P210 Keep away from flames and hot surfaces. No smoking.
 P264 Wash hands thoroughly after handling.
 P280 Wear protective gloves, protective clothing, and eye protection.

P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P337+P313 If eye irritation persists: Get medical attention.

P403+P235 Store in a well-ventilated place. Keep cool.

P501 Dispose of container and contents according to local regulations.

Hazards Not Otherwise Classified: Not applicable.

Ingredients(s) with Unknown Acute Toxicity: Not applicable.

3. COMPOSITION AND INFORMATION ON HAZARDOUS INGREDIENTS

Substance: Water saturated 1-octanol

Other Designations: n-Octyl alcohol; octyl alcohol; 1 hydroxyoctane; heptyl carbinol

Components are listed in compliance with OSHA's 29 CFR 1910.1200; for the actual values see the NIST Certificate of Analysis.

Hazardous Component(s)	CAS Number	EC Number (EINECS)	Nominal Mass Concentration (%)
1-Octanol	111-87-5	203-917-6	95
Non-Hazardous Component(s)			
Water	7732-18-5	231-791-2	5

4. FIRST AID MEASURES

Description of First Aid Measures:

Inhalation: If adverse effects occur, remove to uncontaminated area. If not breathing, give artificial respiration or oxygen by qualified personnel. Seek immediate medical attention.

Skin Contact: Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get immediate medical attention. Thoroughly clean and dry contaminated clothing before reuse. Destroy contaminated shoes.

Eye Contact: Immediately flush eyes, including under the eyelids with copious amounts of water for at least 15 minutes. Seek immediate medical attention.

Ingestion: If vomiting occurs, keep head lower than hips to help prevent aspiration. If person is unconscious, turn head to side. Get medical attention immediately.

Most Important Symptoms/Effects, Acute and Delayed: Exposure may result in irritation.

Indication of any immediate medical attention and special treatment needed, if necessary: If any of the above symptoms are present, seek immediate medical attention.

5. FIRE FIGHTING MEASURES

Fire and Explosion Hazards: Moderate fire hazard. The vapor is heavier than air. Vapors or gases may ignite at distant ignition sources and flash back. See Section 9, "Physical and Chemical Properties" for flammability properties.

Extinguishing Media:

Suitable: Alcohol-resistant foam, carbon dioxide, regular dry chemical, water
Large fires: Use alcohol-resistant foam or flood with fine water spray.
Unsuitable: None listed.

Specific Hazards Arising from the Chemical: Thermal decomposition will form oxides of carbon.

Special Protective Equipment and Precautions for Fire-Fighters: Avoid inhalation of material or combustion byproducts. Wear full protective clothing and NIOSH approved self-contained breathing apparatus (SCBA).

NFPA Ratings (0 = Minimal; 1 = Slight; 2 = Moderate; 3 = Serious; 4 = Severe)

Health = 1 Fire = 2 Reactivity = 0

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures: Immediately contact emergency personnel. Keep unnecessary personnel away. Avoid heat, flames, sparks and other sources of ignition. Remove sources of ignition. Stop leak if possible without personal risk. Use suitable protective equipment; see Section 8, "Exposure Controls and Personal Protection".

Methods and Materials for Containment and Clean up: Reduce vapors with water spray. Absorb with sand or other non-combustible material. Collect spilled material in appropriate container for disposal. Collect spilled material in appropriate container for disposal. Isolate hazard area and deny entry.

7. HANDLING AND STORAGE

Safe Handling Precautions: See Section 8, “Exposure Controls and Personal Protection”.

Storage: Store and handling in accordance with all current regulations and standards. Keep separated from incompatible substances (see Section 10, “Stability and Reactivity”).

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Exposure Limits: No occupational exposure limits available.

Engineering Controls: Provide local exhaust or process enclosure ventilation system. Ensure compliance with applicable exposure limits.

Personal Protection: In accordance with OSHA 29 CFR 1910.132, subpart I, wear appropriate Personal Protective Equipment (PPE) to minimize exposure to this material.

Respiratory Protection: If workplace conditions warrant a respirator, a respiratory protection program that meets OSHA 29CFR 1910.134 must be followed. Refer to NIOSH 42 CFR 84 for applicable certified respirators.

Eye/Face Protection: Wear splash resistant safety goggles with a face shield. An eyewash station should be readily available near areas of use.

Skin and Body Protection: Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Chemical-resistant gloves should be worn at all times when handling chemicals.

9. PHYSICAL AND CHEMICAL PROPERTIES

Descriptive Properties:	1-Octanol (95 % of this SRM)
Appearance (physical state, color, etc.):	clear colorless liquid
Molecular Formula	C ₈ H ₁₈ O
Molar Mass (g/mol)	130.2
Odor	pungent odor
Odor threshold	not available
pH	not available
Evaporation rate	not available
Melting point/freezing point	-17 °C (1.4 °F)
Relative Density as Specific Gravity (water=1)	0.827
Vapor Pressure	0.2 mmHg at 20 °C
Vapor Density (air = 1)	4.5
Viscosity (cP)	8.4 cP at 20 °C
Solubility(ies)	water solubility: 0.06 % at 25 °C; soluble in alcohol, ether, chloroform, mineral oils, petroleum ether, and propylene glycols
Partition coefficient (n-octanol/water)	not available

Thermal Stability Properties	1-Octanol (95 % of this SRM)
Autoignition Temperature	not applicable
Thermal Decomposition	not applicable
Initial boiling point and boiling range	194 °C (381.2 °F)
Explosive Limits, LEL (Volume %)	not applicable
Explosive Limits, UEL (Volume %)	not applicable
Flash Point (Closed Cup)	81 (178 °F)
Flammability (solid, gas)	not applicable

10. STABILITY AND REACTIVITY

Reactivity: Stable at normal temperatures and pressure.

Stability: Stable Unstable

Possible Hazardous Reactions: None listed.

Conditions to Avoid: Avoid heat, flames, sparks and other sources of ignition. Containers may rupture or explode if exposed to heat.

Incompatible Materials: Acids, oxidizing materials, combustible materials, metal salts.

Fire/Explosion Information: See Section 5, "Fire Fighting Measures".

Hazardous Decomposition: Thermal decomposition will produce oxides of carbon.

Hazardous Polymerization: Will Occur Will Not Occur

11. TOXICOLOGICAL INFORMATION

Route of Exposure: Inhalation Skin Ingestion

Symptoms Related to the Physical, Chemical and Toxicological Characteristics: Exposure may result in irritation.

Potential Health Effects (Acute, Chronic and Delayed):

Inhalation: Acute inhalation of high concentrations may be irritating. Inhalation may result in systemic toxicity similar to that caused by ingestion. No data listed for chronic exposure.

Skin Contact: May cause irritation, and may be absorbed through the skin. Chronic exposure may cause dry skin and dermatitis due to defatting of the skin.

Eye Contact: Direct contact may cause irritation. No data listed for chronic exposure.

Ingestion: Ingestion may result in nausea, vomiting, diarrhea, central nervous system depression, headache, muscle weakness, ataxia, confusion, delirium, cardiac effects including heart failure, and liver and kidney damage. Ingestion of 1-octanol may pose an aspiration hazard. No data listed for chronic exposure.

Numerical Measures of Toxicity:

Acute Toxicity: Not classified.

1-Octanol: Rat, Oral LD50: >3200 mg/kg

Rabbit, Dermal LD50: >5000 mg/kg

Skin Corrosion/Irritation: Not classified.

1-Octanol: Rabbit, skin: 500 mg (24 h) mild, 0.5 mL (4 h) mild

Serious Eye damage/Eye irritation: Category 2A.

1-Octanol: Rabbit, eyes: 0.1 mL

Respiratory Sensitization: No data available.

Skin Sensitization: No data available.

Germ Cell Mutagenicity: No data available.

Carcinogenicity: Not classified.

Listed as a Carcinogen/Potential Carcinogen _____ Yes X No

1-Octanol is not listed by NTP, IARC or OSHA as carcinogens.

Reproductive Toxicity: Not classified.

1-Octanol, Rat, Oral TDLo: 6500 mg/kg (pregnant 6 d to 15 d)

Specific Target Organ Toxicity, Single Exposure: No data available.

Specific Target Organ Toxicity, Repeated Exposure: No data available.

Aspiration Hazard: No data available.

12. ECOLOGICAL INFORMATION

Ecotoxicity Data

1-Octanol: Fish, Rainbow Trout (*Oncorhynchus mykiss*) LC50 (static): 17.68 mg/L

Persistence and Degradability: No data available.

Bioaccumulative Potential: No data available.

Mobility in Soil: No data available.

Other Adverse effects: No data available.

13. DISPOSAL CONSIDERATIONS

Waste Disposal: Dispose of waste in accordance with all applicable federal, state, and local regulations.

14. TRANSPORTATION INFORMATION

U.S. DOT and IATA: This material is not regulated by DOT or IATA (flash and boiling points above regulated limits).

15. REGULATORY INFORMATION

U.S. Regulations:

CERCLA Sections 102a/103 (40 CFR 302.4): Not regulated.

SARA Title III Section 302 (40 CFR 355.30): Not regulated.

SARA Title III Section 304 (40 CFR 355.40): Not regulated.

SARA Title III Section 313 (40 CFR 372.65): Not regulated.

OSHA Process Safety (29 CFR 1910.119): Not regulated.

SARA Title III Sections 311/312 Hazardous Categories (40 CFR 370.21):

ACUTE HEALTH: Yes

CHRONIC HEALTH: No

FIRE: Yes

REACTIVE: No

PRESSURE: No

State Regulations: Not listed under California Proposition 65.

U.S. TSCA Inventory: 1-Octanol is listed.

TSCA 12(b), Export Notification: Not listed.

Canadian Regulations: WHMIS Information is not provided for this material.

16. OTHER INFORMATION

Issue Date: 19 June 2014

Sources: ChemAdvisor, Inc., MSDS *N-Octyl Alcohol*, 21 March 2014.

Hazardous Substances Data Bank (HSDB), National Library of Medicine's TOXNET system, *1-Octanol CAS No. 111-87-5*; available at <http://toxnet.nlm.nih.gov> (accessed June 2014).

ECETOC (European Centre for Ecotoxicology and Toxicology of Chemicals), Avenue E Van Nieuwenhuyse 4 (Bte 6), 1160 - Brussels, Belgium, *Eye Irritation: Reference Chemicals Data Bank (Second Edition)*, June 1998; available at <http://www.ecetoc.org/index.php> (accessed June 2014).

Australian Government, Department of Health, National Industrial Chemicals, Notification and Assessment Scheme, Inventory Multi-Tiered Assessment and Prioritisation (IMAP), Human Health Tier II Assessment for Primary Aliphatic Alcohols (C7,C8); available at http://www.nicnas.gov.au/chemical-information/imap-assessments/imap-group-assessment-report?assessment_id=785 (accessed June 2014).

Key of Acronyms:

ACGIH	American Conference of Governmental Industrial Hygienists	NRC	Nuclear Regulatory Commission
ALI	Annual Limit on Intake	NTP	National Toxicology Program
CAS	Chemical Abstracts Service	OSHA	Occupational Safety and Health Administration
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act	PEL	Permissible Exposure Limit
CFR	Code of Federal Regulations	RCRA	Resource Conservation and Recovery Act
DOT	Department of Transportation	REL	Recommended Exposure Limit
EC50	Effective Concentration, 50 %	RM	Reference Material
EINECS	European Inventory of Existing Commercial Chemical Substances	RQ	Reportable Quantity
EPCRA	Emergency Planning and Community Right-to-Know Act	RTECS	Registry of Toxic Effects of Chemical Substances
IARC	International Agency for Research on Cancer	SARA	Superfund Amendments and Reauthorization Act
IATA	International Air Transportation Agency	SCBA	Self-Contained Breathing Apparatus
IDLH	Immediately Dangerous to Life and Health	SRM	Standard Reference Material
LC50	Lethal Concentration, 50 %	STEL	Short Term Exposure Limit
LD50	Lethal Dose, 50 %	STOT	Specific Target Organ Toxicity
LEL	Lower Explosive Limit	TLm	Threshold Limit, median
MSDS	Material Safety Data Sheet	TLV	Threshold Limit Value
NFPA	National Fire Protection Association	TPQ	Threshold Planning Quantity
NIOSH	National Institute for Occupational Safety and Health	TSCA	Toxic Substances Control Act
NIST	National Institute of Standards and Technology	TWA	Time Weighted Average
n.o.s.	Not Otherwise Specified	UEL	Upper Explosive Limit
		WHMIS	Workplace Hazardous Materials Information System

Disclaimer: Physical and chemical data contained in this SDS are provided only for use in assessing the hazardous nature of the material. The SDS was prepared carefully, using current references; however, NIST does not certify the data in the SDS. The certified values for this material are given in the NIST Certificate of Analysis.

Users of this SRM should ensure that the SDS in their possession is current. This can be accomplished by contacting the SRM Program: telephone (301) 975-2200; fax (301) 948-3730; e-mail srmmsds@nist.gov; or via the Internet at <http://www.nist.gov/srm>.