

SDS

Deuterium Oxide 99.9%

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION	
1.1 Product Number	
Identification of the Substance	Deuterium oxide 99.9%
Product Number	DWO-9990 series products
CAS Number	7789-20-0
Registration Number (REACH)	A registration number is not available for this substance, the annual tonnage does not require registration or registration is planned for a later date.
EC number	232-148-9
RTECS Number	ZC0230000
1.2 Relevant identified uses of the substance and uses advised against	
Identified uses	Laboratory chemical, manufacture of substances
Uses advised against	Administration to humans
1.3 Details of the supplier of the SDS	
Address	Isowater® Corporation 40 Sandford Fleming Drive Collingwood, Ontario, Canada L9Y 4V7
Contact points	Phone: +1-705-293-1106 Fax: +1-416-981-8988
1.4 Emergency Telephone Number	
Emergency Information Service	CANUTEC (24hr/day): 1-888-226-8832 (North America) 1-613-996-6666 (International)
SECTION 2: HAZARDS IDENTIFICATION	
2.1 Classification of the Substance (GHS)	
According to GHS	Not a hazardous substance
2.2 GHS Label Elements	
Labelling GHS	Not a hazardous substance
Signal words	None
2.3 Hazards not otherwise identified	None
SECTION 3: COMPOSITION INFORMATION ON INGREDIENTS	
3.1 Substances	
Synonyms	Virgin heavy water, Heavy water, Deuterium enriched water, water, deuterium oxide 99.9 wt %, deuterium- hydrogen oxide
Formula	D ₂ O
Molecular Wt	20.03 gm/mol
CAS and EC numbers	See Section 1
OSHA	Not hazardous according to OSHA criteria
Components	Not applicable

SDS

Deuterium Oxide 99.9%

SECTION 4: FIRST AID MEASURES	
4.1 Description of First Aid Measures	
Inhalation	Move person into fresh air. If not breathing give artificial respiration
Skin contact	Wash with soap and rinse with water
Eye contact	Flush eyes with water as a precaution
Ingestion	Never give water to an unconscious person. If conscious, rinse mouth multiple times with water. Drink extra water.
4.2 Most important symptoms and effects both acute and delayed	Described in Section 11
4.3 Indication of any immediate medical attention and special treatment needed	Not breathing or unconscious (see above)
SECTION 5: FIREFIGHTING MEASURES	
5.1 Extinguishing media	
Suitable extinguishing media	Water spray, alcohol-resistant foam, dry chemical or carbon dioxide
5.2 Special hazards arising from substance	None known
5.3 Advice for firefighters	
Specific to product	Self-contained breathing apparatus if necessary
5.4 Further Information	None available
SECTION 6: ACCIDENTAL RELEASE MEASURES	
6.1 Personal precautions, PPE and emergency procedures	Avoid breathing vapors, mist or vapor.
6.2 Environmental precautions	Do not let product enter drains
6.3 Methods and materials for containment and cleaning up	Contain with physical barrier or absorbent material. Recover liquid to suitable container. Rinse area thoroughly with water.
6.4 References to other actions	For disposal see Section 13
SECTION 7: HANDLING AND STORAGE	
7.1 Precautions for safe handling	Observe PPE recommendations in Section 8. Use of eye protection, gloves and protective clothing is recommended
7.2 Conditions for safe storage including incompatibilities	Store between +4C and +40C to avoid freezing or excessive vapor pressure. If frozen, thaw at room temperature and check container for leaks. Store in tightly sealed container. Hygroscopic material. Reseal containers after opening and store under inert gas to retain deuterium levels
7.3 Specific end use(s)	See Section 1.2
SECTION 8: EXPOSURE CONTROL AND PERSONAL PROTECTION	
8.1 Control parameters	
Occupational exposure limit values	Not available
8.2 Exposure Controls	
Appropriate engineering controls	General industrial hygiene protection

SDS

Deuterium Oxide 99.9%

Personal protective equipment	
Eye/face protection	Safety goggles with side protection or face shield
Skin protection	Protective clothing
Hand protection	Gloves (i.e. neoprene), hand washing,
Respiratory protection	None usually needed unless significant mist or vapor is created
Environmental exposure controls	Avoid contaminating surface or ground water

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Physical State	Liquid
Color	Colorless
Odour	Odorless
Odour threshold	no data available
pH	~7
Melting/freezing point	3.8°C
Boiling point and range	101-102°C
Flash point	Not determined
Evaporation rate	no data available
Flammability (solid, gas)	Not relevant
Explosive limits	Data not available
Vapor pressure	Not available
Density	1.104 gm/cm ³ at 25°C
Vapor density	Not available
Bulk density	Not applicable
Relative density	Not available
Water solubility	Miscible in any proportion
Partition coefficient	Not available
Autoignition temperature	Not available
Decomposition temperature	Not available
Viscosity	Not determined
Explosive properties	Not classed as an explosive
Oxidising properties	None
9.2 Other physical and chemical parameters	None

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity	This material is not reactive under normal ambient temperatures
10.2 Chemical stability	This material is stable under the normal or anticipated storage and handling conditions of temperature and pressure

SDS

Deuterium Oxide 99.9%

10.3 Possibility of hazardous reactions	No known hazardous reactions
10.4 Conditions to avoid	No specific conditions known
10.5 Incompatible materials	No additional information
10.6 Hazardous decomposition products	None known for this material
SECTION 11: TOXICOLOGICAL INFORMATION	
11.1 Information on toxicological effects	
Acute toxicity	Not classified as acutely toxic
Skin corrosion/irritation	Not classified as an irritant
Serious eye damage/eye irritation	Not classified as seriously damaging or irritant to eye
Respiratory or skin sensitisation	Not classified as skin or respiratory irritant
Germ cell mutagenicity	Not classified as a mutagenic agent
Carcinogenicity	Not classified as a carcinogenic agent
Reproductive toxicity	Not classified as a reproductive toxicant
Specific target organ toxicity-single exposure	Not classified as having target organ toxicity
Specific target organ toxicity-repeated exposure	Not classified as having target organ toxicity
Aspiration hazard	Not classified as an aspiration hazard
Additional information	No data are available on symptoms relating to toxicological properties
SECTION 12: ECOLOGICAL INFORMATION	
12.1 Toxicity	No data available
12.2 Persistence and degradability	No data available
12.3 Bioaccumulating potential	No data available
12.4 Mobility in soil	No data available
12.5 Results of PBT and vPvB assessment	No data, chemical safety assessment not required
12.6 Other adverse effects	None known
SECTION 13: DISPOSAL CONSIDERATIONS	
13.1 Waste treatment methods	
Product	Offer surplus and non-recyclable product to licensed disposal company
Product mixtures	Dispose according to the hazard levels of the components
SECTION 14: TRANSPORT INFORMATION	
DOT Classification	Not dangerous goods (Canada/US)
IMDG	Not dangerous goods
UN number	Not applicable
UN proper shipping name	Not applicable

SDS

Deuterium Oxide 99.9%

Transport hazard class	Not dangerous goods
Packing group	Not applicable
Special Provisions for Transport	Do not freeze (Freezing temperature +3.8°C)
SECTION 15: REGULATORY INFORMATION	
Federal and Provincial/State Regulations	TSCA 8(b) Inventory: Deuterium Oxide
REACH	A registration number is not available for this material as the material and its uses are exempt from regulation, annual tonnage does not require registration or registration is envisaged for a later date.
EINECS	This material is on the European inventory of Existing Commercial Chemical Substances
WHMIS (Canada)	Not controlled under WHMIS
California Prop 65 Components	This material does not contain any chemicals known to the State of California to cause cancer, birth defects or any other reproductive harm.
CNSC (Canada)	This material may not be exported nor imported without a license.
Other Regulations	None known
SECTION 16: OTHER INFORMATION	
HMIS Rating	Health Hazard: 0 Flammability Hazard: 0 Physical Hazard: 0
NFPA Rating	Health Hazard: 0 Fire Hazard: 0 Reactivity Hazard: 0
Other special considerations	None
Updated	January 20, 2023
<i>The information above is believed to be accurate and represents the best information available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Isowater Corporation or any associated companies or persons (The Authors) be liable for any claims, losses or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising even if any of The Authors has been advised of the possibility of such damages.</i>	