



1. PRODUCT AND COMPANY IDENTIFICATION

Product name: VALIDATE[®] GC4 Calibration Verification /Linearity Test Set

Product number: 1400bc, 1400re, 1400sa, 1400sd and 1400vt

VALIDATE[®] products are not known to be hazardous. However, the above listed VALIDATE[®] product contains greater than 1.0% Dimethyl Sulfoxide (DMSO). Therefore, this MSDS sheet was specifically created to provide information pertaining solely to DMSO.

Intended Use: VALIDATE[®] Calibration Verification / Linearity Test Kit solutions are intended for *in vitro* diagnostic use in the quantitative determination of linearity, calibration verification and verification of reportable range in automated, semi-automated and manual instrument systems

Manufacturer: Maine Standards Company, LLC
Address: 765 Roosevelt Trail
Windham, ME 04062

Emergency Phone: 800-377-9684
207-892-1300

Fax: 207-892-2266

2. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms: DMSO
Formula: C₂H₆O_S
Molecular Weight: 78.13 g/mol
IUPAC Name: Dimethyl Sulfoxide
Risk Phrases: None listed
Safety Phrases: S 24/25 Avoid contact with skin and eyes.
Notes: DMSO is not a known carcinogen.

CAS-No.	EC-No.	Index-No.	Concentration
Dimethyl Sulfoxide			
67-68-5	200-664-3	-	-

3. HAZARDS IDENTIFICATION

Emergency Overview

OSHA Hazards
Combustible Liquid, Target Organ Effect

Target Organs
Eyes, Skin

HMIS Classification
Health Hazard: 1
Flammability: 2
Physical hazards: 0

NFPA Rating

Health Hazard: 0

Fire: 2

Reactivity Hazard: 0

Potential Health Effects

Inhalation	May be harmful if inhaled. May cause respiratory tract irritation.
Skin	May be harmful if absorbed through skin. May cause skin irritation.
Eyes	May cause eye irritation.
Ingestion	May be harmful if swallowed.

4. FIRST AID MEASURES**General Advice**

Move out of dangerous area.

If inhaled

If breathed in, move person into fresh air. If not breathing give artificial respiration

In case of skin contact

Wash off with soap and plenty of water.

In case of eye contact

Flush eyes with water as a precaution.

If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water.

5. FIRE-FIGHTING MEASURES**Flammable properties**

Flash point	87 °C (189 °F) - closed cup
Ignition temperature	301 °C (574 °F)

Suitable extinguishing media

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

Special protective equipment for fire-fighters

Wear self contained breathing apparatus for fire fighting if necessary.

6. ACCIDENTAL RELEASE MEASURES**Personal precautions**

Avoid breathing vapors, mist or gas.

Environmental precautions

Do not let product enter drains.

Methods for cleaning up

Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE**Handling**

Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

Storage

Keep container tightly closed in a dry and well-ventilated place.

Store under inert gas. hygroscopic

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Contains no substances with occupational exposure limit values.

Personal protective equipment

Respiratory protection

Respiratory protection is not required. Where protection is desired, use multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection

For prolonged or repeated contact use protective gloves.

Eye protection

Safety glasses

Hygiene measures

General industrial hygiene practice.

Environmental

Terrestrial: Expected to be mobile in soil, due to its high water solubility. Some volatilization from dry soil and surfaces may be expected. Aquatic: Dimethyl sulfoxide disproportionates in water to dimethyl sulfide and dimethyl sulfone, a reaction catalyzed by light. Atmospheric: Exists primarily in the vapor phase and be removed by both wet and dry deposition. It will react with photochemically-produced hydroxyl radicals with a half-life of about 7 hr. DMSO is very difficult to biodegrade.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Form	liquid, clear
Color	colorless

Safety data

pH	no data available
Melting point	18.4 °C (65.1 °F)
Boiling point	189 °C (372 °F) at 1,013 hPa (760 mmHg)
Flash point	87 °C (189 °F) - closed cup
Ignition temperature	301 °C (574 °F)
Lower explosion limit	3.5 %(V)
Upper explosion limit	42 %(V)
Vapor pressure	0.55 hPa (0.41 mmHg) at 20 °C (68 °F)
Density	1.1 g/cm ³
Water solubility	completely miscible
Partition coefficient: n-octanol/water	log Pow: -2.03
Relative vapor density	2.70 - (Air = 1.0)

10. STABILITY AND REACTIVITY

Storage stability

Stable under recommended storage conditions.

Materials to avoid

Acid chlorides, Phosphorus halides, Strong acids, Strong oxidizing agents, Strong reducing agents

Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides, Sulphur oxides

11. TOXICOLOGICAL INFORMATION

Acute toxicity

LD50 Oral - rat - 14,500 mg/kg
LC50 Inhalation - rat - 4 h - 40250 ppm
LD50 Dermal - rabbit - > 5,000 mg/kg

Irritation and corrosion

Skin - rabbit - Mild skin irritation - 24 h
Eyes - rabbit - Mild eye irritation

Sensitization

no data available

Chronic exposure

Carcinogenicity - rat - Oral
Tumorigenic: Equivocal tumorigenic agent by RTECS criteria. Skin and Appendages: Other: Tumors.

Carcinogenicity - mouse - Oral
Tumorigenic: Equivocal tumorigenic agent by RTECS criteria. Leukemia Skin and Appendages: Other: Tumors.

IARC: No component of this product is present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

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

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

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

Genotoxicity in vitro - mouse - lymphocyte
Cytogenetic analysis

Genotoxicity in vitro - mouse - lymphocyte
Mutation in mammalian somatic cells.

Genotoxicity in vivo - rat - Intraperitoneal
Cytogenetic analysis

Genotoxicity in vivo - mouse - Intraperitoneal
DNA damage

Developmental Toxicity - mouse - Intraperitoneal
Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus). Specific Developmental Abnormalities:
Musculoskeletal system.

Reproductive toxicity - rat - Intraperitoneal
Effects on Fertility: Abortion.

Reproductive toxicity - rat - Intraperitoneal
Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants).

Reproductive toxicity - rat - Subcutaneous
Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants).
Effects on Fertility: Litter size (e.g., # fetuses per litter; measured before birth).

Reproductive toxicity - mouse - Oral

Effects on Fertility: Pre-implantation mortality (e.g., reduction in number of implants per female; total number of implants per corpora lutea). Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus). Specific Developmental Abnormalities:
Musculoskeletal system.

Potential Health Effects

Inhalation	May be harmful if inhaled. May cause respiratory tract irritation.
Skin	May be harmful if absorbed through skin. May cause skin irritation.
Eyes	May cause eye irritation.
Ingestion	May be harmful if swallowed.
Target Organs	Eyes, Skin,

Additional InformationRTECS: PV6210000

12. ECOLOGICAL INFORMATION**Elimination information (persistence and degradability)**

no data available

Ecotoxicity effects

Toxicity to fish LC50 - Pimephales promelas (fathead minnow) - 34,000 mg/l - 96 h
LC50 - Oncorhynchus mykiss (rainbow trout) - 35,000 mg/l - 96 h

Toxicity to daphnia and other aquatic invertebrates. EC50 - Daphnia pulex (Water flea) - 27,500 mg/l

Toxicity to algae EC50 - Lepomis macrochirus (Bluegill) - > 400,000 mg/l - 96 h

Further information on ecologyno data available

13. DISPOSAL CONSIDERATIONS**Product**

Contact a licensed professional waste disposal service to dispose of this material. This combustible material may be burned in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state, and local environmental regulations.

Contaminated packagingDispose of as unused product.

14. TRANSPORT INFORMATION**DOT (US)**

UN-Number: 1993 Class: CBL Packing group: III
Proper shipping name: Combustible liquid, n.o.s. (Dimethyl sulfoxide)
Marine pollutant: No
Poison Inhalation Hazard: No

IMDG

Not dangerous goods

IATANot dangerous goods

15. REGULATORY INFORMATION

OSHA Hazards

Combustible Liquid, Target Organ Effect

DSL Status

All components of this product are on the Canadian DSL list.

SARA 302 Components

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

SARA 313 Components

SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards

Fire hazard, Chronic Health Hazard

Massachusetts Right To Know Components

No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

Dimethyl sulfoxide

CAS-No.
67-68-5

Revision Date

New Jersey Right To Know Components

Dimethyl sulfoxide

CAS-No.
67-68-5

Revision Date

California Prop. 65 Components

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

16. OTHER INFORMATION

Further information

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Maine Standards Company shall not be held liable for any damage resulting from handling or from contact with the above product.