Safety Data Sheet

1. Identification of the substance/mixture and of the company/undertaking

1.1. Product Identifier

Product Name: PeCOD Pre-mixed Calibrant
Chemical Name: Sorbitol and Lithium Nitrate Solution

Synonyms:
Advanced Blue Range Pre-mixed Calibrant
Green Range Pre-Mixed Calibrant
Yellow Range Pre-Mixed Calibrant
Red Range Pre-Mixed Calibrant

1.2. Relevant identified uses of the substance or mixture and uses advised against:

Product Use: For the calibration of the MANTECH PeCOD® COD Analyzer. Laboratory and industrial use only.
No uses advised against

1.3. Details of the supplier of the safety data sheet

Manufacturer Information:
579453 Ontario Inc.
o/a MANTECH
5473 Highway 6 North
Guelph, ON, N1H 6J2
Phone: 519-763-4245

1.4. Emergency telephone number

Monday – Friday 8:00AM to 4:30PM (EST): **+1-519-763-4245**
24-hour: **+1-519-835-5252**

2. Hazards Identification

2.1. Hazard classification according to Regulation (EC) No 1272/2008

Class	Category
Eye irritation	2B

Acute Toxicity, dermal	4
Acute Toxicity, inhalation	4
Acute toxicity, oral	4

2.2. Label Elements

Symbol: GHS07

Signal Word: Warning

Hazard Statements:	May cause eye irritation	H320
	May be harmful in contact with skin	H315
	May be harmful if swallowed or inhaled	H302+ H332
Precautionary Statements:	Wash hands thoroughly after handling	P264
	Avoid breathing mists or vapours	P261
	Do not eat, drink or smoke when using this product	P270

2.3. Other hazards

HMIS Ratings:	**Health: 1**	**Fire: 0**	**Physical Hazard: 0**
Hazard Scale:	0 = Minimal	1 = Slight	2 = Moderate
	3 = Serious	4 = Severe	* = Chronic

3. Composition Information

Component	CAS #	Percent
Lithium Nitrate	7790-69-4	<10%
Sorbitol	50-70-4	<0.03%
Silver Nitrate	7761-88-8	<0.0001%
Water and Natural Sugars	-	Balance

4. First Aid Measures

4.1. Description of first aid measures

Eye: Immediately flush eyes with water for at least 15 minutes while holding eyes open. If irritation

persists seek medical attention.
Skin: Wash with water for 15 minutes. If irritation persists seek medical attention
Ingestion: Rinse mouth with water. If swallowed, DO NOT induce vomiting unless directed to do so by a medical physician. Give a glass of water or milk. Never give anything by mouth to a patient who is unconscious or having convulsions.
Inhalation: Remove the patient from exposure.

4.2. Most important symptoms and effects, both acute and delayed

No further information available.

4.3. Indication of any immediate attention and special treatment needed

No further information available.

5. Firefighting Measures

5.1. Extinguishing Media

General Fire Hazards:
This product is an aqueous solution which will not burn. However, if evaporated to dryness this product is an oxidizer and can sustain combustion.

Suitable extinguishing agents: Dry chemical, foam, carbon dioxide, water fog.

5.2. Special hazards arising from the substance or mixture

Hazardous Combustion Properties:
Thermal decomposition products may include irritating vapors and toxic gases including oxides of lithium and nitrogen. If heated to evaporation, this product may evolve oxygen and increase fire hazard.

5.3. Advice for firefighters

Fire Fighting Equipment/Instructions:
Firefighters should wear self-contained breathing apparatus and suitable protective clothing if risk of exposure to products of decomposition.

NFPA Ratings:	**Health: 1**	**Fire: 0**	**Physical Hazard: 0**
Hazard Scale:	0 = Minimal	1 = Slight	2 = Moderate
	3 = Serious	4 = Severe	

6. Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures

Evacuation Procedures:
Isolate area. Keep unnecessary people away.

6.2. Environmental Precautions

Special Procedures:
Follow all local, State, Federal, and Provincial regulations for disposal. Wash area down with excess water.

6.3. Methods and material for containment and cleaning up

Containment Procedures:
Contain the discharged material. Wear appropriate personal protective equipment during clean-up. Avoid contact with combustible material.

Clean-Up Procedures:
Wear appropriate personal protective equipment. Absorb spill with inert material such as lime, polypads, or other suitable absorbent material. Shovel the absorbed material into appropriate container for disposal.

6.4. Reference to other sections

See *Section 7* for information on safe handling.
See *Section 8* for information on personal protective equipment.

7. Handling and Storage

7.1. Precautions for safe handling

Handling Procedures:
Avoid eye contact and repeated or prolonged skin contact. Use with adequate ventilation. Wear suitable protective equipment during handling. Wear protective gloves and eye/face protection. Avoid breathing fumes, mists or vapors. Avoid contact with skin, eyes and clothing. Keep container tightly closed when not in use. Wash thoroughly after handling. Exercise good industrial and personal hygiene procedures.

7.2. Conditions for safe storage, including any incompatibilities

Storage Procedures:
Store in cool, dry, well ventilated place and out of direct sunlight. Store away from incompatible materials described in Section 10. Keep containers closed when not in use – check regularly for leaks.

7.3. Specific end use

See *Section 1.2.* for specific end uses.

8. Exposure Controls / Personal Protection

8.1. Control parameters

EU community exposure limit: N/A

National exposure limit: N/A

8.2. Exposure Controls

Exposure Guidelines: Keep formation of airborne mists to a minimum

Engineering Controls: Natural ventilation should be adequate under normal conditions. Keep containers closed when not in use.

Personal Protective Equipment (PPE)
Eyes/Face: Wear safety glasses
Skin: Wear impervious (neoprene) gloves and cotton/polyester lab coat or overalls
Respiratory: Use in a ventilated area.
General: Wash hands after handling material and before eating or drinking. Eyewash station required.
Other Protective Equipment: An eyewash station and safety shower should be made available in the immediate working area. Other equipment may be required depending on workplace standards.

9. Physical and Chemical Properties

Appearance	Clear, colourless	**Lower Flammable Limit (LFL)**	Not Applicable
Physical State	Liquid	**Upper Flammable Limit (UFL)**	Not Applicable
Odour	Odorless	**Solubility (H_2O)**	Miscible with Water
Odour Threshold	Not Applicable	**Specific Gravity**	1.19 - 1.21 @ 15°C (59°F)
pH	3-6	**Auto Ignition Temperature**	Not Applicable

Melting Point	Not Available	**Decomposition Temperature**	475–650º C
Boiling Point	>100°C (220°F)	**Viscosity**	8.90×10^{-4} Pa. s
Flash Point	Not Applicable	**Partition Coefficient**	Not available
Vapour Pressure	Not Available	**Explosive Properties**	Not applicable
Vapour Density	Not Available	**Oxidizing Properties**	See *Section 5.1.*
Evaporation Rate	Similar to Water		

10. Stability and Reactivity

10.1. Reactivity

This is a strong oxidizing material. It may react under extreme heat with incompatible materials. Hygroscopic.

10.2. Chemical stability

Chemical Stability: This is a stable material.

Conditions to Avoid: Avoid contact with extreme heat and incompatible materials.

10.3. Possibility of hazardous reactions

No dangerous reactions known.

10.4. Incompatible materials

Strong acids; Fuel; Combustible materials; Strong oxidizers

10.5. Hazardous decomposition products

Decomposition may yield Carbon Monoxide, Carbon Dioxide, and/or low molecular weight hydrocarbons, Lithium oxide; Nitrogen oxides (NOx); Oxygen, when heated.

11. Toxicological Information

11.1. Information on toxicological effects

Acute toxicity: No LD50 or LC50 available for this product.

Skin corrosion/irritation: Can cause mild skin irritation.

Serious eye damage/irritation: Causes mild eye irritation.

Respiratory or skin sensitization: This product may be moderately irritating to contaminated tissues.

Germ cell mutagenicity: No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity: No carcinogenicity data available for this product.

Reproductive toxicity: No teratogenicity data available for this product. This product is not expected to cause reproductive or developmental effects.

STOT-single exposure: Not applicable.

STOT-repeated exposure: Not applicable.

Aspiration hazard: Not applicable.

12. Ecological Information

12.1. Toxicity

No data available.

12.2. Persistence and biodegradability

No data available.

12.3. Bioaccumulative potential

No data available.

12.4. Mobility in soil

No data available.

12.5. Results of PBT and vPvB assessment

No data available.

12.6. Other adverse effects

No data available.

13. Disposal Considerations

13.1. Waste treatment method

Dispose of waste according to Local, State, Federal and Provincial Environmental Regulations.

14. Transport Information

14.1. UN-Number

None allocated.

14.2. UN proper shipping name

None allocated.

14.3. Transport hazard class(es)

DOT, IATA, IMDG: This product is not regulated as a hazardous material for transportation

14.4. Packing group

None allocated.

14.5. Environmental hazards

This substance is not associated with any environmental hazards.

14.6. Special precautions for users

Warning: Acute toxicity. May cause eye irritation, or be harmful in contact with skin, if swallowed, or if inhaled.

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable.

15. Regulatory Information

15.1. Safety, health, and environmental regulations/legislation specific for the substance or mixture

US Federal Regulations

This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65) and/or CERCLA (40 CFR 302.4).

Lithium nitrate (7790-69-4) SARA 313:	1.0 % de minimis concentration (reportable only when in aqueous solution, Chemical Category N511) (related to Nitrate Compounds, water dissociable)

Canadian Regulations

Not listed on the Canadian DSL (Domestic Substances List) inventory.
WHMIS Classification: Class D2B: Material Causing Other Toxic Effects.

EU Regulations

i. Directive 2012/18/EU: Substance is not listed.
ii. Named dangerous substances – ANNEX I: Substance is not listed.
iii. LIST OF SUBSTANCES SUBJECT TO AUTHORISATION (ANNEX XIV): Substance is not listed.
iv. Regulation (EC) No 1907/2006 ANNEX XVII: No restrictions for this substance.

Additional Regulatory Information

Component	CAS #	TSCA	DSL	NDSL	EINECS	AUST	MITI	PHIL	KOREA	ELINCS	CHINA
Water	7732-18-5	Yes	Yes	No	Yes	Yes	Yes	No	Yes	No	Yes
Lithium Nitrate	7790-69-4	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	No	Yes

15.2. Chemical safety assessment

A chemical safety assessment had not been performed for this substance.

16. Other Information

Workers should be trained to handle hazardous chemicals. It is recommended that they are familiar with the contents of this safety data sheet (SDS). This SDS is not a risk assessment; recipients are advised to make their own risk assessment as required by other Health and Safety legislations. This substance is compliant with REACH.

Created: June 20, 2012

Revised: October 3, 2019

Reference: Not Available

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