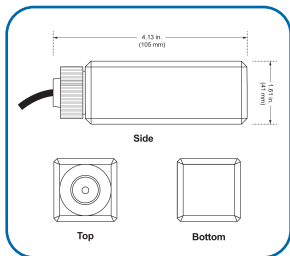


## Glycol Temperature Buffer



### Description

The glycol thermal buffer is used with Monnit leaded temperature sensors (not for use with Monnit's high or low temp sensors). The glycol buffer protects against air temperature shifts in refrigerators and freezers caused by opening doors for product access or the loading of inventory into coolers. This product is ideal for scientific / medical laboratories, medical offices, pharmacies, restaurants, grocery stores, etc., that want to eliminate "false positive" notifications and minimize anomalous spikes in their data reporting that are non-critical events.

The glycol temperature buffer uses food grade glycol diluted in deionized water. While the glycol solution is non-toxic, we recommend that you wear latex gloves and safety glasses - if you have them - prior to handling.

Glycol temperature buffers are recommended by the World Health Organization (WHO), Food and Drug Administration (FDA) and the Centers for Disease Control (CDC).

To properly use the glycol temperature buffer, you will need a temperature sensor with a waterproof lead. If you do not have a temperature sensor with a waterproof lead, you may purchase one through our website or contact your Monnit sales representative at 801-561-5555.

### Platform Specifications

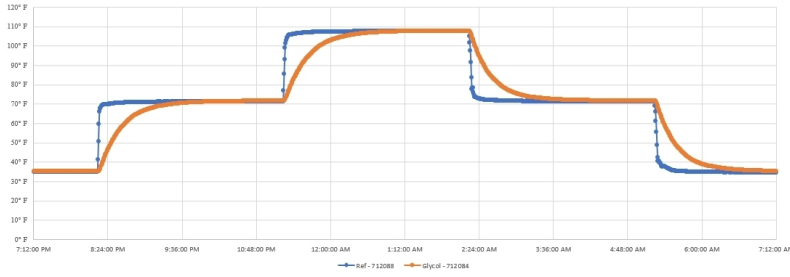
Part Number	MNA-TB-GL
Bottle Material	HDPE (Pharmaceutical Grade)
Fluid Capacity	120 ml
Bottle Contents	60% Propylene Glycol USP/40% Deionized Water*
Temperature Range	-40°C to +85°C (-40°F to +185°F)
Weight	5.43 ozs (154 grams)

\* Deionized water is more pure than distilled water and electrically non-conductive.

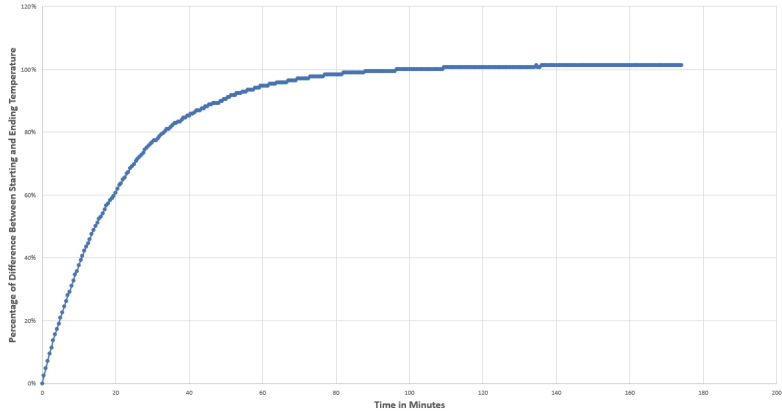
### Example Applications

- Cooler Temperature Monitoring
- Freezer Temperature Monitoring

Temperature Response Time in High Convection Environment (Fast Air Circulation)  
Standard Temperature Lead vs Standard Temperature Lead in Glycol Buffer



Amount of Time it Takes to Move from One Temperature to Another



Response Time (Minutes)	% of Difference Between Inside and Outside Temperatures
5	20%
10	38%
20	61%
30	77%
40	85%
50	90%
60	95%
70	97%
80	98%
90	99%
100	100%

**Example: Inside freezer temperature 0 F (-14 C) moving to outside temperature.**

	Outside Temp (F)	Outside Temp (C)	Outside Temp (F)	Outside Temp (C)	Outside Temp (F)	Outside Temp (C)	Outside Temp (F)	Outside Temp (C)	Outside Temp (F)	Outside Temp (C)	Outside Temp (F)	Outside Temp (C)
	100.0	37.8	80.0	26.7	60.0	15.6	40.0	4.4	20.0	-6.7	10.0	-12.2
Response Time (Minutes)	Temp (F)	Temp (C)	Temp (F)	Temp (C)	Temp (F)	Temp (C)	Temp (F)	Temp (C)	Temp (F)	Temp (C)	Temp (F)	Temp (C)
5	20.0	-6.7	16.0	-8.9	12.0	-11.1	8.0	-13.3	4.0	-15.6	2.0	-16.7
10	37.5	3.1	30.0	-1.1	22.5	-5.3	15.0	-9.4	7.5	-13.6	3.8	-15.7
20	60.7	15.9	48.6	9.2	36.4	2.5	24.3	-4.3	12.1	-11.0	6.1	-14.4
30	76.7	24.8	61.4	16.3	46.0	7.8	30.7	-0.7	15.3	-9.3	7.7	-13.5
40	85.0	29.4	68.0	20.0	51.0	10.6	34.0	1.1	17.0	-8.3	8.5	-13.1
50	90.0	32.2	72.0	22.2	54.0	12.2	36.0	2.2	18.0	-7.8	9.0	-12.8
60	94.6	34.8	75.7	24.3	56.8	13.8	37.8	3.2	18.9	-7.3	9.5	-12.5
70	97.0	36.1	77.6	25.3	58.2	14.6	38.8	3.8	19.4	-7.0	9.7	-12.4
80	98.2	36.8	78.6	25.9	58.9	15.0	39.3	4.0	19.6	-6.9	9.8	-12.3
90	99.4	37.4	79.5	26.4	59.6	15.4	39.8	4.3	19.9	-6.7	9.9	-12.3
100	100.0	37.8	80.0	26.7	60.0	15.6	40.0	4.4	20.0	-6.7	10.0	-12.2

# Propylene Glycol Safety Data Sheet

<b>SECTION 1: Identification</b>	
<b>1.1 Product identifier</b>	
Product name	PROPYLENE GLYCOL USP KOSHER
Product number	
Brand	
Substance name	1,2-PROPANEDIOL
EC no.	200-338-0
CAS no.	57-55-6
<b>1.2 Other means of identification</b>	Unavailable
<b>1.3 Recommended use of the chemical and restrictions on use</b>	Organic synthesis, especially for polypropylene glycol and polyester resins; antifreeze solutions; solvent for fats, oils, waxes, resins, flavoring extracts, perfumes, colors, soft-drink syrups, and antioxidants; cellophane; hygroscopic agent; coolant in refrigeration systems; plasticizers, hydraulic fluids; bactericide; textile conditioners; in foods as a solvent, wetting agent and humectant; emulsifier; feed additive; anticaking agent; preservative (retards mold and fungi); cleansing creams; suntan lotions; pharmaceuticals; brake fluids; deicing fluids for airport runways; substitute for ethylene glycol and glycerol; fermentation inhibitor; as a mist to disinfect air; heat exchangers; as humectant in textiles, tobacco, and pet foods; and in veterinary medicine as a glucogenic (orally) in ruminants.
<b>1.4 Supplier's details</b>	
Name	Duda Energy LLC
Address	1112 Brooks St. Decatur, AL 35601 USA
Telephone	256.340.4866
Fax	
Email	
<b>1.5 Emergency phone number(s)</b>	800.255.3924 (Chemtel)
<b>SECTION 2: Hazard identification</b>	
<b>2.1 Classification of the substance or mixture</b>	Not a hazardous substance or mixture.
<b>2.2 GHS label elements, including precautionary statements</b>	Not a hazardous substance or mixture.
<b>2.3 Other hazards which do not result in classification</b>	None

### SECTION 3: Composition/information on ingredients

<b>3.1 Substances</b>	
Substance name	1,2-PROPANEDIOL
EC no.	200-338-0
CAS no.	57-55-6
Formula	C3H8O2
Molecular weight	76.1
Other names / synonyms	PROPYLENE GLYCOL USP; PROPYLENE GLYCOL; 1,2-PROPANEDIOL
Impurities and stabilizing additives	None

### SECTION 4: First-aid Measures

<b>4.1 Description of necessary first-aid measures</b>	
General advice	Wear basic PPE to prevent exposure - splash resistant goggles, chemical resistant clothing.
If inhaled	Move to fresh air and consult a physician should effects occur.
In case of skin contact	Wash thoroughly with water.
In case of eye contact	Flush eyes thoroughly with water for several minutes. If contact lenses are present, remove after the first 1 to 2 minutes then flush for several more minutes. If symptoms arise, consult a physician.
If swallowed	Emergency medical treatment is not needed in case of ingestion.
Personal protective equipment for first-aid responders	No special protection is needed.
<b>4.2 Most important symptoms/effects, acute and delayed</b>	No known symptoms or effects from acute exposure. Repeated, excessive exposure may cause issues with central nervous system.
<b>4.3 Indication of immediate medical attention and special treatment needed, if necessary</b>	None; treat symptomatically.

### SECTION 5: Fire-fighting Measures

<b>5.1 Suitable extinguishable media</b>	Powder, alcohol resistant foam, Carbon Dioxide (CO2) DO NOT use water jet as this will cause the fire to spread.
<b>5.2 Specific hazards arising from the chemical</b>	Hazardous gases may develop during fire.
<b>5.3 Special protective actions for fire-fighters</b>	SCBA and protective gear should be worn in case of fire.
<b>Further information</b>	Use standard firefighting methods and consider the hazards of other materials involved.

### SECTION 6: Accidental Release Measures


<b>6.1 Personal precautions, protective equipment and emergency procedures</b>	Keep unnecessary personnel away. Use proper PPE.
<b>6.2 Environmental precautions</b>	Avoid discharge into drains, water courses, or onto the ground

<b>6.3 Methods and materials for containment and cleaning up</b>	<p>For large spills; If possible, stop the flow of material. Use water spray to reduce vapors if present. Dike spilled material. Absorb with dry sand, vermiculite, or earth and place waste into containers. Flush area with water.</p> <p>For small spills; Any absorbant material. Collect in suitable and properly labeled open containers. Wash the spill site with large quantities of water.</p>
<b>Reference to other sections</b>	None
<b>SECTION 7: Handling and Storage</b>	
<b>7.1 Precautions for safe handling</b>	Observe good general industrial hygiene practices.
<b>7.2 Conditions for safe storage, including any incompatibilities</b>	Store tightly sealed in original container, away from incompatible materials.
<b>Specific end use(s)</b>	None defined.
<b>SECTION 8: Exposure controls/personal protection</b>	
<b>8.1 Control parameters</b>	
<b>1 Component 1 (trade secret)</b>	TWA (Aerosol): 10 mg/m <sup>3</sup>
<b>8.2 Appropriate engineering controls</b>	Good ventilation should be used (10 air changes per hour is typically sufficient).
<b>8.3 Individual protection measures, such as personal protective equipment (PPE)</b>	
<b>Eye/face protection</b>	Wear splash resistant goggles or glasses with side-walls/face shield
<b>Skin protection</b>	Wear appropriate chemical resistant clothing
<b>Body protection</b>	Goggles/ face-shield, gloves, protective clothing
<b>Respiratory protection</b>	In cases where ventilation is poor and airborne levels may rise, wear a respirator fitted with Organic vapor cartridges
<b>Thermal hazards</b>	N/A
<b>Environmental exposure controls</b>	Unavailable
<b>SECTION 9: Physical and chemical properties</b>	
<b>Information on basic physical and chemical properties</b>	
Appearance/form (physical state, color, etc.)	Liquid
Odor	Odorless
pH	N/A
Melting point/freezing point	-60
Initial boiling point and boiling range	188.2
Flash point	99

Evaporation rate	Unavailable
Flammability (solid, gas)	N/A
Upper/lower flammability limits	12.6% / 2.6%
Vapor Pressure	0.02 kPa @ 25°C
Vapor density	Unavailable
Relative density	1.0361 @ 20°C
Solubility(ies)	Water, at 20°C
Partition coefficient: n-octanol/water	log Pow: -1.07
Auto-ignition temperature	>400°C
Decomposition temperature	Unavailable
Viscosity	Unavailable
Explosive properties	Not explosive
Oxidizing properties	Not an oxidizer
<b>Other safety information</b>	Unavailable
<b>SECTION 10: Stability and Reactivity</b>	
<b>10.1 Reactivity</b>	Stable and non-reactive under normal conditions
<b>10.2 Chemical stability</b>	Material remains stable under normal conditions
<b>10.3 Possibility of hazardous reactions</b>	No dangerous reaction known under typical conditions
<b>10.4 Conditions to avoid</b>	Contact with incompatible materials
<b>10.5 Incompatible materials</b>	Strong oxidizing agents; strong bases, strong acids.
<b>10.6 Hazardous decomposition products</b>	Can include but are not limited to; Aldehydes, Alcohols, Ethers, Organic acids
<b>SECTION 11: Toxicological Information</b>	
<b>Information on toxicological effects</b>	
<b>Acute toxicity</b>	
Acute Oral Toxicity	Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts. LD50, Rat, >20,000 mg/kg
Acute dermal toxicity	Prolonged skin contact is unlikely to result in absorption of harmful amounts. LD50, Rabbit, >2,000 mg/kg No deaths occurred at this concentration.
Acute inhalation toxicity	At room temperature, exposure to vapor is minimal due to low volatility. Mist may cause irritation of upper respiratory tract (nose and throat). LC50, Rabbit, 2 hour, dust/mist, 317.042 mg/l No deaths occurred at this concentration.
<b>Skin corrosion/irritation</b>	Not especially irritating to skin. Repeated exposure may cause some softening of the skin and flaking.
<b>Serious eye damage/irritation</b>	May cause temporary discomfort. Mist may cause irritation

<b>Respiratory or Skin Sensitization</b>	Not considered a skin or respiratory sensitizer.
<b>Germ cell mutagenicity</b>	No available data indicates that this material is mutagenic or genotoxic.
<b>Carcinogenicity</b>	No evidence suggests this material is carcinogenic
<b>Reproductive toxicity</b>	Not expected to cause reproductive or developmental effects.
<b>Summary of evaluation of the CMR properties</b>	Unavailable
<b>STOT-single exposure</b>	Not classified as an STOT-SE
<b>STOT-repeated exposure</b>	In rare cases, excessive and repeated exposure may cause issues with the central nervous system.
<b>Aspiration hazard</b>	Not an aspiration hazard
<b>Additional information</b>	None available
<b>SECTION 12: Ecological Information</b>	
<b>Toxicity</b>	Not classified as environmentally hazardous. Large or frequent spills may still have some damaging or harmful effects on the environment.
Component 1	EC50 - Daphnia magna (water flea) ->10000 mg/l - 48hrs LC50 - Pimephales promelas (flathad minnow) - 710 mg/l - 96hrs
<b>Persistence and degradability</b>	Unavailable
<b>Bioaccumulative potential</b>	Partition coefficient n-octanol / water (log Kow): -0.92
<b>Mobility in soil</b>	Potential for mobility in soil is very high.
<b>Results of PBT and vPvB assessment</b>	Unavailable
<b>Other adverse effects</b>	None
<b>SECTION 13: Disposal Considerations</b>	
<b>Disposal of the product</b>	Dispose of in accordance with any and all applicable regulations
<b>Disposal of contaminated packaging</b>	Contaminated packaging should be disposed of only in accordance with all applicable regulations.
<b>Waste treatment</b>	Dispose of waste material in accordance with local regulations regarding the disposal of waste material.
<b>Sewage disposal</b>	Dispose of in accordance with any and all applicable regulations.
<b>Other disposal recommendations</b>	None
<b>SECTION 14: Transport Information</b>	
<b>DOT (US)</b>	Not dangerous goods
<b>IMDG</b>	Not dangerous goods
<b>IATA</b>	Not dangerous goods

## SECTION 15: Regulatory Information

<b>15.1 Safety, health and environmental regulations specific for the product in question</b>	
<b>Pennsylvania Right to Know Components</b>	Chemical name: 1, 2-Propanediol CAS number: 57-55-6
<b>New Jersey Right to Know Components</b>	Common name: Propylene Glycol CAS number: 57-55-6
<b>15.2 Chemical Safety Assessment</b>	N/A
<b>NFPA</b>	

## SECTION 16: Other Information

<b>16.1 Further Information /disclaimer</b>	<p>The information provided in this Safety Datasheet is correct to the best of Monnit Corp's knowledge, information, and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal, and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text. This Safety Datasheet only contains information relating to safety and does not replace any product information or product specification. Please note, the content may be changed, corrected, or deleted at any time without notice and may not always necessarily reflect the most current data. Monnit Corp will assume no responsibility for any trouble or failure caused by the errors in the information provided, nor any damage associated with the usage of the information.</p>
<b>16.2 Preparation Information</b>	Version:2 Revised: 04-05-2017



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