ThermaGraph™ Data Center & HVAC Coolant

SKUs: GI-TG-5GAL, GI-TG-55GAL, GI-TG-275GAL

Safety Data Sheet

Prepared in OSHA Hazard Communication Standard (29 CFR 1910.1200, HazCom 2012) / GHS 16-section format. Revision date 2026-11-19. No measured value has been invented: finished-product values are "Reported on lot Certificate of Analysis" or "Not determined"; values labeled "typical, base fluid" are published carrier data.

1. IDENTIFICATION

Product identifier	ThermaGraph™ Data Center & HVAC Coolant
Product codes (SKUs)	GI-TG-5GAL, GI-TG-55GAL, GI-TG-275GAL
Product description	Formulated for low electrical conductivity (deionized-water base, graphene at 0.5–1.5 wt%) and enhanced thermal conductivity. Not a dielectric; measured values on lot CoA.
Recommended use	Heat-transfer fluid for indoor closed loops (CDU, direct-to-chip cold plates, rear-door heat exchangers) and closed-loop HVAC chilled-water and hydronic loops where freeze protection is not required.
Restrictions on use	Not a dielectric fluid. Electrically conductive like any water-based coolant. Do not use it for immersion of energized electronics or in direct contact with them. Not a freeze-protection fluid (freezes at about 0 °C).
Supplier / manufacturer	Graphene Integrations, LLC (manufacturer of the graphene and of this product), 8101 Beatty Rd, Sherrills Ford, NC 28673, USA
Email	sales@grapheneintegrations.com
Website	grapheneintegrations.com
Phone	+1 (704) 659-3682
Emergency phone number	+1 (704) 659-3682 (24-hour emergency number)

2. HAZARD(S) IDENTIFICATION

GHS / OSHA HazCom 2012 classification	Non-toxic, glycol-free, not classified as hazardous. Not classified, based on the known components: deionized water (not hazardous) and graphene 0.5–1.5 wt% and the additives listed in Section 3, each screened as not classified on published SDSs (the NaOH is fully neutralized). Composition is given as ranges; the exact percentages are withheld as a trade secret (29 CFR 1910.1200(i)). Graphene 0.5–1.5 wt%, sodium polyacrylate dispersant 0.5–2 wt%, sodium benzoate 0.3–1 wt% and sodium molybdate dihydrate 0.1–0.3 wt% (corrosion inhibitors), sodium hydroxide <0.1 wt% (fully neutralized for pH), balance deionized water. No biocide (no BIT or other isothiazolinone); no H317 or H302 ingredients.
Signal word	None (not classified)
Hazard statements	None (not classified)

Pictograms	None
Precautionary statements	Avoid contact with eyes. Wash hands after handling. Dispose of according to local regulations.
Hazards not otherwise classified	Conducts electricity, so a leak onto energized equipment can cause electrical faults. Spills make floors slippery.
Ingredient(s) of unknown acute toxicity	Up to 1.5% of the mixture consists of graphene of unknown acute toxicity.
Label text	Non-toxic. Glycol-free. Protect from freezing.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Mixture: graphene pre-mixed in a liquid carrier, never supplied as a dry powder. Contains no glycol, no other additives and no carbon black. Composition is given as ranges; the exact percentages are withheld as a trade secret (29 CFR 1910.1200(i)). Graphene 0.5–1.5 wt%, sodium polyacrylate dispersant 0.5–2 wt%, sodium benzoate 0.3–1 wt% and sodium molybdate dihydrate 0.1–0.3 wt% (corrosion inhibitors), sodium hydroxide <0.1 wt% (fully neutralized for pH), balance deionized water. No biocide (no BIT or other isothiazolinone); no H317 or H302 ingredients.

Component	CAS number	Concentration (% by weight)
Deionized water	7732-18-5	Balance (>95)
Graphene	1034343-98-0	0.5–1.5
Sodium polyacrylate (dispersant)	9003-04-7	0.5–2
Sodium benzoate (corrosion inhibitor)	532-32-1	0.3–1
Sodium molybdate dihydrate (corrosion inhibitor)	10102-40-6	0.1–0.3
Sodium hydroxide (pH adjust, fully neutralized)	1310-73-2	<0.1

Trade secret claim	None claimed.

4. FIRST-AID MEASURES

Eye contact	Rinse with plenty of water for several minutes, removing contact lenses if easy to do. Get medical attention if irritation persists.
Skin contact	Wash with soap and water.
Inhalation	Not expected under normal use. Move to fresh air if mist causes discomfort.
Ingestion	Rinse mouth. Do not induce vomiting. If you feel unwell, seek medical attention.
Most important symptoms and effects	Mild, temporary eye irritation is possible from particles. No other effects are known.
Immediate medical attention / special treatment	Not normally required. Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	The product is water-based and does not burn. Use media suitable for the surrounding fire.
Unsuitable extinguishing media	None known.
Specific hazards	If the water evaporates, residual carbon solids may produce carbon oxides in a fire.
Firefighter protection	Self-contained breathing apparatus and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment, emergency procedures	1) Isolate electrical power to the affected racks or equipment according to site lockout/tagout procedures before cleanup. 2) Stop the leak at the source if it is safe to do so (isolate the loop or tank valves). 3) Wear nitrile gloves and safety glasses. 4) Spilled fluid is slippery, so mark the area and keep people out.
Environmental precautions	Avoid large releases to drains. Follow local discharge rules.
Methods and materials for containment and clean-up	Absorb with pads or a wet-vacuum and collect in a labeled container. Wipe the surfaces with water, then dry them. Inspect the equipment and check that it is dry and clean before re-energizing it.

7. HANDLING AND STORAGE

Precautions for safe handling	Mix or roll the container before use. Avoid contact with eyes. Wash hands after handling. Do not eat, drink or smoke in work areas. Keep out of reach of children.
Conditions for safe storage	Store in tightly closed containers, indoors, at 5–40 °C. Protect from freezing. See the lot COA for shelf life or contact GI. Glycol-free: no freeze protection. Freezing can damage containers and equipment and may cause the graphene to settle out; mix well after any thaw.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Occupational exposure limits	No OSHA PEL or ACGIH TLV has been established for graphene or water.
Engineering controls	General ventilation is adequate. Avoid generating mist.
Eye / face protection	Safety glasses with side shields.
Skin / hand protection	Nitrile gloves.
Respiratory protection	Not normally required. If mist is generated above the exposure limits, use a NIOSH-approved respirator.

9. PHYSICAL AND CHEMICAL PROPERTIES

Conductivity (electrical / thermal)	Formulated for low electrical conductivity (deionized-water base, graphene at 0.5–1.5 wt%) and enhanced thermal conductivity. Not a dielectric; measured values on lot CoA.

Physical state	Liquid
Appearance / color	Dark grey to black liquid (graphene dispersed in water). Mix before use; graphene may settle.
Odor	Odorless to slight
pH	Reported on the lot Certificate of Analysis (COA). Pure water is 7.0 at 25 °C (typical, base fluid).
Freezing point	About 0 °C (water carrier, glycol-free, no freeze protection); see the lot Certificate of Analysis.
Initial boiling point	About 100 °C at 1 atm (typical, base fluid: water)
Flash point	Not applicable (aqueous; does not burn)
Flammability	Not flammable
Vapor pressure	3.17 kPa at 25 °C (typical, base fluid: water)
Relative density	About 1.00 at 20 °C (typical, base fluid: water)
Solubility	Miscible with water (graphene is dispersed, not dissolved)
Viscosity	About 0.89 mPa·s at 25 °C (typical, base fluid: water). Reported on the lot Certificate of Analysis (COA).
Electrical conductivity	Reported on the lot Certificate of Analysis (COA). Method: ASTM D1125. Electrically conductive; not a dielectric.
Graphene content	0.5–1.5 wt%. Reported on the lot Certificate of Analysis (COA).
Water property source	PubChem, Water: https://pubchem.ncbi.nlm.nih.gov/compound/Water

10. STABILITY AND REACTIVITY

Reactivity	Not reactive under normal conditions.
Chemical stability	Stable. Graphene may settle over time, so mix before use.
Possibility of hazardous reactions	None known.
Conditions to avoid	Contact with energized equipment (for an aqueous coolant).
Incompatible materials	Strong oxidizers.
Hazardous decomposition products	Carbon oxides in a fire.

11. TOXICOLOGICAL INFORMATION

Likely routes of exposure	Skin and eye contact. Ingestion is unlikely. Inhalation is not expected (no dust).

Acute toxicity estimates	Water: not toxic. Graphene: Graphene was assigned no harmonized GHS classification. Published reviews (Fadeel et al., ACS Nano 2018, Safety Assessment of Graphene-Based Materials: https://pubmed.ncbi.nlm.nih.gov/30387986/) report that the main concern is inhaling dry, airborne particles. This product contains graphene only as a dispersion in a liquid, not as a powder. Toxicity data for this graphene grade in this form are not available.
Skin corrosion / irritation	Not expected (water-based; no additives).
Serious eye damage / irritation	Particles may cause mild, temporary discomfort.
Respiratory or skin sensitization	None known.
Germ cell mutagenicity	None known.
Carcinogenicity (NTP, IARC, OSHA)	No component is listed by NTP, IARC or OSHA.
Reproductive toxicity	None known.
STOT single / repeated exposure	None known.
Aspiration hazard	Not applicable.

12. ECOLOGICAL INFORMATION

Ecotoxicity	Water: none. Graphene: limited data, and effects in aquatic systems are still being studied (Fadeel et al., ACS Nano 2018, Safety Assessment of Graphene-Based Materials: https://pubmed.ncbi.nlm.nih.gov/30387986/).
Persistence and degradability	Graphene: not biodegradable; persistent.
Bioaccumulative potential	No data.
Mobility in soil	Graphene is expected to settle and bind to soil and sediment.
Other adverse effects	None known.

13. DISPOSAL CONSIDERATIONS

Waste treatment / disposal methods	Collect it. Do not discharge large quantities to drains without permission from the local wastewater authority. Filtering out solids before discharge is preferred. Follow local, state and federal regulations.
Contaminated packaging	Empty the container completely, then recycle or dispose of it according to local regulations.

14. TRANSPORT INFORMATION

UN number	Not regulated
UN proper shipping name	Not regulated
Transport hazard class(es)	Not regulated (US DOT, IATA, IMDG)
Packing group	Not applicable

Environmental hazards (marine pollutant)	No
Special precautions	Keep containers upright and closed.

15. REGULATORY INFORMATION

TSCA inventory status	Water (7732-18-5): listed. Graphene (1034343-98-0): Not identified on the public TSCA Chemical Substance Inventory. EPA has handled graphene and graphene nanoplatelets as new chemical substances (premanufacture notices with significant new use rules, e.g. 40 CFR 721.10844 and 721.11917). Some suppliers report graphene nanoplatelets under graphite (7782-42-5, TSCA active); that listing has not been applied to this product. Contact Graphene Integrations for the current TSCA status of the graphene in this product.
SARA 311/312	None
SARA 313	No listed chemicals
CERCLA reportable quantity	None
California Proposition 65	Contains no carbon black. Contact GI for Proposition 65 questions.

16. OTHER INFORMATION

Prepared by	Graphene Integrations, LLC, 8101 Beatty Rd, Sherrills Ford, NC 28673, USA • sales@grapheneintegrations.com
Revision date	2026-11-19
Revision	Version 4.1 (revised 2026-11-19)
Notes	Graphene is supplied only pre-mixed in a liquid carrier, never as a dry powder. Finished-product values are reported on each lot's Certificate of Analysis. Aligned with ThermaGraph SDS v3 (2026-10-29).
Disclaimer	The information in this SDS is believed to be accurate as of the revision date. It does not constitute a warranty. Users should determine the suitability of this product for their own use.