LOTI LABS

RESEARCH USE ONLY · FORMULATION

Safety Data Sheet

GW-501516 10mg/ml (30ml)

Active ingredient	GW501516
Active CAS	317318-70-0
Active MW	453.5 g/mol
DOCUMENT ID	LL-SDS-4525-001
REVISION DATE	2026-10-22
VERSION	1.8

01. Identification

Product identifier	GW-501516 10mg/ml (30ml)
Other means of identification	Loti Labs catalog listing “GW-501516 10mg/ml (30ml)” (lotilabs.com product ID 4525); SDS document ID LL-SDS-4525-001.
Formulation type	Liquid research formulation
Active ingredient	GW501516
Active ingredient CAS number	317318-70-0
Active ingredient molecular formula	C21H18F3NO3S2
Active ingredient PubChem CID	9803963
Active ingredient IUPAC name	2-[2-methyl-4-[[4-methyl-2-[4-(trifluoromethyl)phenyl]-1,3-thiazol-5-yl]methylsulfanyl]phenoxy]acetic acid
Recommended use	Research laboratory chemical for in-vitro scientific research and development.
Restrictions on use	Not for human or veterinary use. Not for food, drug, cosmetic, household, agricultural, clinical, therapeutic, or diagnostic applications.

Supplier details

Company	Loti Labs
Address	1204 S Broad St, Brooksville, FL 34601, United States
Telephone	877-LOTI-LAB (877-568-4522)
Website	https://lotilabs.com/
Emergency contact	CHEMTREC

Emergency phone	800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 hours/day; 7 days/week

Recommended use conditions: handle under a chemical fume hood by trained laboratory personnel.

02. Hazard(s) identification

Mixture hazard determination, measured data applied. Physical hazard: the carrier (75% polyethylene glycol 400 / 25% vegetable glycerine) has a measured closed-cup flash point of 183 °C (361.4 °F) by ASTM D93 Method A. This is above the 93 °C upper limit of the GHS flammable-liquid classes, so the mixture is NOT classified as a flammable or combustible liquid under GHS. The laboratory's Class IIIB combustible liquid (NFPA workplace fire-code terminology) designation is a workplace fire-code label, not a GHS class and not a transport class.

OSHA/GHS classification	Physical hazards: not classified as a flammable liquid (measured closed-cup flash point 183 °C, above the 93 °C GHS limit). Health hazards: classified as stated in the hazard statements below from active-ingredient evidence and concentration.
Signal word	Warning
Hazard pictograms	GHS08 (health hazard)
Hazard statements	H351 Suspected of causing cancer.
Hazards not otherwise classified	Treat as a research formulation of incompletely characterized active material. Avoid contact, ingestion, and release to the environment.
Unknown acute toxicity	Not applicable: no ingredient of unknown acute toxicity is present at 1% or more (active ingredient ≈ 0.766% w/w; the carrier components have established acute toxicity data).

Precautionary statements

P201 Obtain special instructions before use.

P202 Do not handle until all safety precautions have been read and understood.

P308+P313 IF exposed or concerned: Get medical advice/attention.

P405 Store locked up.

P264 Wash hands and exposed skin thoroughly after handling.

P280 Wear protective gloves, protective clothing, and eye protection.

P501 Dispose of contents/container in accordance with applicable regulations.

These statements are the label elements corresponding to the classification in this section.

GW501516 has no harmonized GHS classification; the final Category 2 carcinogenicity determination in Section 2 is based on nonclinical multi-organ tumor findings and the active concentration in this formulation.

Health hazard of the active ingredient: the active is present at 10 mg/mL, equivalent to approximately 0.766% w/w using the measured mixture density of 1.306 g/mL. Carcinogenicity, Category 2 (H351) applies to the mixture: the active produced multi-organ tumors in long-term rodent carcinogenicity studies and is present above the 0.1% GHS cut-off. Health-hazard classification of the mixture was determined against the GHS generic concentration cut-off values in 29 CFR 1910.1200 Appendix A (0.1% for carcinogenicity, germ cell mutagenicity and reproductive toxicity; 1% for acute toxicity, irritation and specific target organ toxicity).

03. Composition / information on ingredients

Component	CAS	Formula	MW	Concentration

GW501516	317318-70-0	C21H18F3NO3S2	453.5 g/mol	10 mg/mL (≈ 0.766% w/w)
Polyethylene glycol 400 (PEG 400)	25322-68-3	(C2H4O)n	380-420 g/mol (avg)	75% v/v of carrier base
Vegetable glycerine (glycerol)	56-81-5	C3H8O3	92.09 g/mol	25% v/v of carrier base

Liquid research formulation containing GW501516 at 10 mg/mL in a carrier base of 75% polyethylene glycol 400 / 25% vegetable glycerine. The stated carrier percentages are nominal % v/v of the carrier base supplied by Loti Labs, prior to addition of the active ingredient; active concentration is stated separately. The active corresponds to approximately 0.766% w/w of the mixture using the measured density of 1.306 g/mL.

Prime Process Safety Center tested the client-supplied sample identified as Mix 2 as received (report PPSCQ2686-TR-092026). Loti's controlled formulation record assigns Mix 2 (75% PEG-400 / 25% vegetable glycerine, nominal % v/v) to this product. The measured density is recorded as laboratory data; it differs from an idealized component-density estimate and is not used as proof of composition.

04. First-aid measures

Inhalation	Move person to fresh air. Keep at rest. Obtain medical advice if symptoms develop or persist.
Skin contact	Remove contaminated clothing. Wash thoroughly with soap and water. Seek medical advice if irritation develops.
Eye contact	Rinse cautiously with water for at least 15 minutes. Remove contact lenses if easy to do. Continue rinsing. Obtain medical attention if irritation persists.
Ingestion	Rinse mouth. Do not induce vomiting unless directed by medical personnel. Contact a poison center or physician if swallowed or symptoms occur.
Most important symptoms/effects	No formulation-specific clinical data available. Exposure may cause irritation. Delayed effects: suspected of causing cancer (Section 11).
Immediate medical attention	Treat symptomatically. No specific antidote known.

05. Fire-fighting measures

Suitable extinguishing media	Water spray, dry chemical, carbon dioxide, or foam appropriate to the surrounding fire.
Unsuitable extinguishing media	Do not direct a solid water stream into hot or burning liquid; it may cause spattering.
Specific hazards	The liquid formulation has a measured closed-cup flash point of 183 °C and contains no volatile flammable components. Thermal decomposition of organic components may generate carbon oxides, nitrogen oxides, and other irritating or toxic fumes; sulfur oxides may also form under fire or thermal decomposition conditions. Thermal decomposition may also release hydrogen fluoride.
Protective equipment	Firefighters should wear full protective equipment and positive-pressure self-contained breathing apparatus.

The carrier (75% polyethylene glycol 400 / 25% vegetable glycerine) has a measured closed-cup flash point of 183 °C and contains no volatile flammable components; no flammable-vapor precautions beyond good laboratory practice are required. Use water spray to cool containers exposed to fire.

06. Accidental release measures

Personal precautions

Restrict access. Avoid contact and aerosol generation. Ensure adequate ventilation. Remove ignition sources where applicable. Wear PPE described in Section 8.

Environmental precautions

Prevent release to drains, sewers, surface water, and soil.

Containment and cleanup

Absorb with inert compatible material, collect into a sealed labeled container, and clean the affected area.

07. Handling and storage

Precautions for safe handling

Handle as a potentially bioactive research formulation of unknown or incompletely characterized toxicity. Avoid contact with eyes, skin, and clothing. Avoid generating dust, mist, or aerosols. Keep away from heat and ignition sources. Do not eat, drink, smoke, or apply cosmetics in work areas. Wash thoroughly after handling.

Storage conditions

Keep tightly closed in the original labeled container. Protect from heat, ignition sources, light, moisture, and physical damage. Follow product-label and lot-specific storage conditions.

Incompatibilities

Strong oxidizing agents, strong acids, strong bases, excessive heat, direct sunlight, and ignition sources.

Other information

Liquid research formulation containing GW501516 at 10 mg/mL in a carrier base of 75% polyethylene glycol 400 / 25% vegetable glycerine. The active corresponds to approximately 0.766% w/w of the mixture using the measured density of 1.306 g/mL.

08. Exposure controls / personal protection

Occupational exposure limits

No OSHA PEL, NIOSH REL, or ACGIH TLV identified for GW501516. Glycerin (mist): OSHA PEL 15 mg/m³ total particulate and 5 mg/m³ respirable fraction (8-h TWA, 29 CFR 1910.1000 Table Z-1). Maintain exposure as low as reasonably achievable.

Engineering controls

Use local exhaust ventilation or effective containment for open transfer, dilution, or any task with potential for airborne dust, mist, or vapor. Provide accessible eyewash and safety shower. Use appropriate local exhaust ventilation.

Personal protective equipment

Eye / face protection	Safety glasses with side shields as a minimum; chemical splash goggles for splash, aerosol, or open-transfer tasks.
Hand protection	Disposable nitrile gloves suitable for the mixture. Inspect before use and replace if contaminated, damaged, or degraded.
Skin protection	Laboratory coat, long trousers, and closed-toe footwear. Add a chemical-resistant apron for splash-prone handling.

Respiratory protection	Normally unnecessary inside effective containment. Where controls cannot prevent exposure, use a NIOSH-approved respirator under a compliant respiratory-protection program (29 CFR 1910.134).
Hygiene	Wash hands after handling and before breaks. Remove contaminated clothing. Decontaminate work surfaces and equipment.

PPE must be selected by the employer based on task-specific risk assessment, quantity, physical form, and exposure potential.

09. Physical and chemical properties

Physical state	Liquid formulation
Appearance	Clear, colorless to slightly colored liquid.
Color	Not separately determined; see Appearance.
Odor / odor threshold	No reliable formulation-specific data available
Melting point / freezing point	Not determined for formulation
Boiling point / range	Not determined for formulation
Flammability	Not classified as a flammable or combustible liquid under GHS (measured flash point 183 °C, above the 93 °C limit); Class IIIB combustible liquid (NFPA workplace fire-code terminology)
Lower / upper flammability or explosion limits	Not determined for the mixture (closed-cup flash point 183 °C).
Flash point	183 °C (361.4 °F), closed cup, ASTM D93 Method A, measured on the Mix 2 carrier (Prime Process Safety Center report PPSCQ2686-TR-092026, dated 2026-09-15)
Auto-ignition / decomposition temperature	Not determined for formulation
pH	6.16 at 30 °C (measured, Mix 2 carrier)
Kinematic viscosity	2.005 mm²/s at 25 °C (measured); dynamic viscosity 2.619 mPa·s
Particle characteristics	Not applicable (liquid).
Solubility	No product-specific measured solubility data available
Partition coefficient	No formulation-specific data available
Vapor pressure / relative vapor density	Vapor pressure: not determined for the mixture. Relative vapor density: not determined for the mixture.
Evaporation rate	Not determined for the mixture.
Relative density	1.306 (measured density 1.306 g/mL, Mix 2 carrier)
Active ingredient molecular weight	453.5 g/mol
Active ingredient molecular formula	C21H18F3NO3S2

Measured physicochemical data (Section 9): closed-cup flash point 183 °C (361.4 °F) by ASTM D93 Method A; pH 6.16 at 30 °C; density 1.306 g/mL; kinematic viscosity 2.005 mm²/s and dynamic viscosity 2.619 mPa·s at 25 °C. Determined on the Mix 2 carrier under ISO/IEC 17025 accreditation (Prime Process Safety Center report PPSCQ2686-TR-092026, dated 2026-09-15) and applied to this product by GHS bridging, the active being a non-volatile solid at approximately 0.766% w/w. Sustained combustibility was reported as not applicable because the flash point exceeds 60.5 °C (UN Manual of Tests and Criteria). Melting point, boiling point, vapor pressure, and partition coefficient remain undetermined for the formulation.

10. Stability and reactivity

Reactivity	No dangerous reaction known under recommended handling and storage conditions.
Chemical stability	Expected to be stable when stored as directed; active compounds may degrade with heat, light, moisture, oxidation, or pH extremes.
Possibility of hazardous reactions	Hazardous polymerization is not expected.
Conditions to avoid	Heat, ignition sources, moisture, direct sunlight, ultraviolet exposure, and prolonged exposure to air.
Incompatible materials	Strong oxidizers, strong acids, and strong bases.
Hazardous decomposition products	Carbon monoxide, carbon dioxide, nitrogen oxides, and other irritating or toxic fumes under fire or thermal decomposition conditions; sulfur oxides may also form under fire or thermal decomposition conditions; hydrogen fluoride may also form.

GW501516 may undergo photodegradation; avoid strong UV sources and protect from light.

11. Toxicological information

Toxicological assessment: The classification in Section 2 reflects the available component and formulation information. No additional GHS health-hazard classification is assigned beyond the hazards stated in Section 2.

Likely routes of exposure	Inhalation, eye contact, skin contact, and ingestion.
Acute toxicity	No reliable quantitative formulation-specific oral, dermal, or inhalation toxicity data identified.
Skin corrosion / irritation	No reliable standardized formulation-specific test data identified. Irritation cannot be excluded.
Serious eye damage / irritation	No reliable standardized formulation-specific test data identified. Irritation cannot be excluded.
Respiratory / skin sensitization	No reliable formulation-specific data identified. Sensitization cannot be excluded.
Carcinogenicity	Category 2 (H351). Long-term rodent studies reported multi-organ tumors (GSK rat and mouse carcinogenicity studies reported as conference abstracts and referenced in the WADA alert, Section 16); the full study reports are not publicly available, so the evidence could not be evaluated against the Category 1B criterion and Category 2 is assigned. GW501516 is not listed in the NTP Report on Carcinogens or the IARC Monographs and is not regulated as a carcinogen by OSHA. The finished formulation has not been tested; the determination is derived from active-ingredient evidence and the concentration stated in Section 3.

11. Toxicological information · continued

Germ cell mutagenicity	No reliable formulation-specific data identified.
Reproductive toxicity	No reliable formulation-specific data identified.
STOT, single / repeated exposure	No reliable formulation-specific data identified.
Aspiration hazard	No formulation-specific determination available.
Symptoms / delayed effects	No formulation-specific symptoms established. Delayed effects: suspected of causing cancer (see the rows above). Other effects of accidental exposure may be immediate or delayed; data are insufficient.
Numerical measures of toxicity	No reliable formulation-specific numerical toxicity values available.
Interactive effects	No information on interactive effects was identified.
Alternative information / method	Health-hazard classifications in Section 2 are derived from data on the active ingredient (published studies, regulatory product information and, where applicable, authoritative carcinogen and reproductive-toxicant listings, as cited in Sections 11 and 16), applied at the concentration in Section 3 using the generic cut-off values of 29 CFR 1910.1200 Appendix A. The finished product has not been tested.
Derived no-effect level (DNEL)	No formulation-specific DNEL has been derived.
Predicted no-effect concentration (PNEC)	No formulation-specific PNEC has been derived.

Literature-based note: GW501516 (cardarine) produced multi-organ tumors in long-term rodent carcinogenicity studies; chronic toxicity data for this mixture are lacking.

12. Ecological information

Ecotoxicity	No reliable formulation-specific fish, aquatic invertebrate, or algae data identified. Avoid environmental release.
Persistence / degradability	No reliable formulation-specific biodegradation data identified.
Bioaccumulative potential	No reliable formulation-specific BCF or log Kow data identified.
Mobility in soil / other adverse effects	No reliable formulation-specific data available.

PEG-400 and glycerin are readily biodegradable; the environmental fate of the active ingredient is unknown.

13. Disposal considerations

Waste treatment

Dispose of material, contaminated PPE, absorbents, and containers through a licensed waste contractor in accordance with federal, state, and local requirements. Do not discharge to drains, sewers, or waterways. The waste generator is responsible for determining whether the waste meets hazardous-waste criteria at the time of disposal.

14. Transport information

Framework	UN number	Proper shipping name	Class	Packing group

U.S. DOT	None assigned	Not regulated as dangerous goods	Not applicable
IATA	None assigned	Not regulated as dangerous goods	Not applicable
IMDG	None assigned	Not regulated as dangerous goods	Not applicable

Not regulated as dangerous goods for transport (measured closed-cup flash point 183 °C); no quantity provisions apply.

Environmental hazards	Not listed as a marine pollutant (49 CFR 172.101 Appendix B; IMDG Code). No aquatic-toxicity data meeting the UN environmentally hazardous substance criteria were identified for the product.
Transport in bulk	Not applicable. The product is supplied in non-bulk packagings and is not transported in bulk under IMO instruments (MARPOL Annex II / IBC Code).
Special precautions	No special transport precautions beyond keeping containers closed, upright and protected from heat and physical damage.

Transport assessment (Section 14): the measured closed-cup flash point of 183 °C is far above the 60 °C Class 3 threshold, and above the 93 °C combustible-liquid limit. The mixture is not a Class 3 flammable liquid and is not otherwise known to meet the criteria of any UN transport hazard class on available data. No UN number, proper shipping name, class, or packing group applies; the product is consigned as not regulated as dangerous goods for road, air, and sea transport. The laboratory's Class IIIB designation is a workplace fire-code label and is not a transport classification.

15. Regulatory information

Jurisdiction: this SDS is prepared for supply and use in the United States under the OSHA Hazard Communication Standard (29 CFR 1910.1200). Active ingredient CAS number(s) assessed: 317318-70-0. U.S. TSCA: no exact CAS match on that public inventory (317318-70-0); confidential identities are not visible in the public file. Carrier components polyethylene glycol (25322-68-3) and glycerol (56-81-5) are listed as active on the TSCA Inventory. California Proposition 65: no exact active-ingredient CAS match on the official list dated July 31, 2026. CERCLA/SARA: no listed component was identified under 40 CFR 302.4 or 40 CFR 372.65 in the reviewed public records; threshold and release-reporting duties remain quantity- and use-dependent. Sources checked: EPA TSCA non-confidential Inventory (July 2026), OEHHA Proposition 65 list (July 31, 2026), 40 CFR 302.4 and 40 CFR 372.65. Public-inventory status is not product approval or authorization.

16. Other information

Document ID	LL-SDS-4525-001
REVISION DATE	2026-10-22
VERSION	1.8
Prepared for	Loti Labs
Basis	OSHA Hazard Communication Standard, 29 CFR 1910.1200, including Appendix D; OSHA HCS 2024 alignment (primarily GHS Revision 7). Jurisdiction: United States; Section 14 covers U.S.-origin shipments under 49 CFR, the IATA Dangerous Goods Regulations and the IMDG Code.

Revision history	Revision 1.8 (2026-10-22): final line-by-line consistency review of all sections; Section 5 unsuitable extinguishing media stated (Appendix D 5(a)); Section 16 carcinogenicity sources identified (WADA alert of 21 March 2013; Geiger et al. and Newsholme et al. 2009); wording, spelling (U.S.), units and batch-method text standardized. Revision 1.7 (2026-10-18): checked against the batch Certificate(s) of Analysis listed below; batch-documentation statements (assay, counter-ion, water and solvent content) corrected to match what the batch COAs actually report; Section 1 other means of identification completed; Section 2 unknown-acute-toxicity statement added (Appendix D 2(e)); Section 9 completed for all Appendix D properties (color, flammability limits, vapor density, evaporation rate, particle characteristics); Section 11 interactive-effects and data-basis statements added (Appendix D 11(e), 11(g)); Section 14 environmental-hazard, bulk-transport and special-precaution entries completed; Section 15 limited to U.S. federal and state requirements (non-U.S. inventory statements removed); carcinogenicity basis stated consistently in Sections 2, 11 and 16 with the IARC/NTP/OSHA listing status (Appendix D 11(f)); Section 8 glycerin mist exposure limit added for the carrier; Section 3 carrier composition stated on its confirmed basis (nominal % v/v of the carrier base); Sections 5 and 10 hazardous decomposition products aligned with the elemental composition of the ingredients. Revision 1.6 (2026-10-03): completed manual formulation, classification and label review; aligned signal words, pictograms and precautionary statements; reconciled active-ingredient evidence across Sections 2 and 11; confirmed the Mix 2 not-regulated transport determination.
Batch documentation reviewed	Bioviridian COA (verification code COA5954), lot LL-GW501-626, dated 2026-08-06: identity by LC-MS (mass 453.5 Da); purity 99.79% (RP-HPLC, 214 nm); measured content 11.69 mg. The COA prints verification code COA5954, for which no laboratory-hosted copy could be retrieved, and its QR code resolves to an unrelated record (COA4543); the printed identity, mass and purity are consistent with this SDS. The COA tests the active-ingredient material; the finished-solution concentration is not assayed on the COA. This SDS is product-level; lot-specific identity, purity and content are governed by the batch Certificate of Analysis.

Principal sources consulted

PubChem. GW501516, Compound Summary, CID 9803963. National Center for Biotechnology Information. https://pubchem.ncbi.nlm.nih.gov/compound/9803963. Accessed 2026-07-15.

PubChem. Polyethylene glycol 400 (CAS 25322-68-3) and Glycerol (CID 753). National Center for Biotechnology Information. Accessed 2026-07-15.

OSHA. Hazard Communication Standard, 29 CFR 1910.1200, including Appendix D, Safety Data Sheets. https://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.1200. Accessed 2026-07-15.

OSHA. Hazard Communication Standard Final Rule (2024). https://www.osha.gov/hazcom/rulemaking. Accessed 2026-07-15.

United Nations. Globally Harmonized System of Classification and Labelling of Chemicals, Revision 7 (2017). https://unece.org/transport/dangerous-goods/ghs-rev7-2017. Accessed 2026-07-15.

NTP / IARC. Report on Carcinogens and IARC Monographs classifications. https://ntp.niehs.nih.gov/whatwestudy/assessments/cancer/roc; https://monographs.iarc.who.int/agents-classified-by-the-iarc/. Accessed 2026-07-15.

World Anti-Doping Agency. WADA issues alert on GW501516 (news release, 21 March 2013): development terminated after serious toxicities were found in preclinical studies. https://www.wada-ama.org/en/news/wada-issues-alert-gw501516. Accessed 2026-10-22.

Geiger LE, Dunsford WS, Lewis DJ, et al. Rat carcinogenicity study with GW501516, a PPAR delta agonist. The Toxicologist (Toxicol Sci suppl.) 2009;108(1):185, abstract 895; Newsholme SJ, Dunsford WS, Brodie T, et al. Mouse carcinogenicity study with GW501516, a PPAR delta agonist. The Toxicologist 2009;108(1):185, abstract 896. Conference abstracts; full study reports not publicly available. Accessed 2026-10-22.

EPA. TSCA Chemical Substance Inventory, non-confidential portion (July 2026 release). https://www.epa.gov/tsca-inventory. Accessed 2026-10-18.

OEHHA. Proposition 65 List of chemicals known to the State of California to cause cancer or reproductive toxicity (list dated July 31, 2026). https://oehha.ca.gov/proposition-65/proposition-65-list. Accessed 2026-10-18.

Key abbreviations

CAS, Chemical Abstracts Service · GHS, Globally Harmonized System · IATA, International Air Transport Association · IMDG, International Maritime Dangerous Goods · NIOSH, National Institute for Occupational Safety and Health · OSHA, Occupational Safety and Health Administration · PPE, Personal protective equipment · STOT, Specific target organ toxicity.

Document review and approval

By signing below, the reviewer confirms that the supplied form, composition, hazard classification, transport classification and regulatory content of this safety data sheet have been reviewed and are approved for release.

CHECKED BY	Dr Afroza Begum
CREDENTIALS	PhD in Biosciences
DATE	10/11/2026
SIGNATURE	Afroza Begum

Scope of review: Reviewed for content, classification, labelling and transport under 29 CFR 1910.1200 (Appendices A to D) and 49 CFR. Compound identity was checked against public references (PubChem, CAS) and the supplier’s product specification. Batch composition, purity and certificates of analysis were not verified as part of this review. Transport classification reviewed for consistency with 49 CFR; classification for shipment remains the shipper’s responsibility. Applies to version 1.8 dated 2026-10-22 only.

PEPTIDE PURITY. SCIENCE DELIVERED.

This SDS is subject to periodic review and revision when material new hazard information becomes available or applicable regulatory requirements change.

This SDS does not replace institutional risk assessment.

This SDS is not a certification of product safety.