

Revision Date: 10.01.2026 | Version: 1.0

1. Identification of the Substance/Mixture and of the Company/Undertaking

1.1 Product Identifier

Product Name: Licorice Root Supercritical CO₂ Extract (Glabridin-Rich)

Product Code: AF-GLGL1TSF

CAS Number: 84775-66-6

EC Number: 283-895-2

INCI Name: Glycyrrhiza Glabra Root Extract

Synonyms: Licorice CO₂ Extract, Liquorice Root Extract, Glabridin Extract, Glycyrrhiza Extract

1.2 Relevant Identified Uses and Uses Advised Against

Recommended Use: Cosmetic active ingredient (skin lightening, anti-inflammatory, antioxidant), personal care formulations, pharmaceutical preparations, nutraceutical applications.

Uses Advised Against: Not intended for direct consumption or direct application to skin without proper formulation. Industrial/professional use only.

1.3 Supplier Details

AltraFlora Natural Botanicals Inc.

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2. Hazards Identification

2.1 Classification of the Substance or Mixture

Classification according to Regulation (EC) No 1272/2008 (CLP) and OSHA HCS (29 CFR § 1910.1200):

GHS Hazard Classifications:

- Eye Irritation Category 2B (H320)

2.2 Label Elements

Signal Word: Not applicable

Hazard Pictograms: None required

Hazard Statements:

H320 — Causes eye irritation

Precautionary Statements:

P264 — Wash hands thoroughly after handling

P280 — Wear eye protection/face protection

P305+P351+P338 — IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P337+P313 — If eye irritation persists: Get medical advice/attention

2.3 Other Hazards

PBT/vPvB Assessment: Does not meet PBT or vPvB criteria according to REACH.

Other Hazards: Prolonged exposure to dust can cause respiratory effects. Contains glabridin which may have mild estrogenic activity. High doses of glycyrrhizin (if present) may affect blood pressure in sensitive individuals.

Classification System:

NFPA Rating (0-4)	HMIS Rating (0-4)
Health: 1 Fire: 1 Reactivity: 0	Health: 1 Fire: 1 Reactivity: 0

3. Composition/Information on Ingredients

3.1 Substance

Chemical Name: Licorice Root Extract (Supercritical CO₂ Extract)

Botanical Name: Glycyrrhiza glabra L.

Plant Part: Root and rhizome, dried

Extraction Method: Supercritical fluid extraction with carbon dioxide and ethanol co-solvent

Origin: Turkey

Key Components:

Component	CAS No.	Type	Content
Glabridin	59870-68-7	Isoflavane	>6%
Glabrol	74161-25-4	Isoflavane	1-3%
Methylglabridin	118610-83-4	Isoflavane	0.5-2%
Hispaglabridin A	102841-44-7	Isoflavane	0.5-1.5%
Hispaglabridin B	102841-43-6	Isoflavane	0.5-1.5%
Isoliquiritigenin	961-29-5	Chalcone	0.5-2%
Liquiritigenin	578-86-9	Flavanone	0.5-2%
Fatty acids (palmitic, linoleic)	Various	Lipids	10-25%
Other flavonoids/phenolics	Various	Mixed	Balance

Note: This lipophilic CO₂ extract is enriched in prenylated flavonoids (glabridin class) and is essentially free of or very low in glycyrrhizic acid (<0.1%), unlike conventional water or ethanol extracts. Ethanol residue <1800 ppm (co-solvent).

4. First-Aid Measures

General Advice	If medical advice is needed, have product container or label at hand. Show this safety data sheet to the doctor.
Inhalation	If inhaled, remove to fresh air. If symptoms persist, get medical attention. Prolonged exposure to dust may cause respiratory irritation.
Skin Contact	Remove contaminated clothing. Wash area with soap and water. Adverse skin effects should be prevented by normal care and personal hygiene. If irritation occurs, get medical attention.
Eye Contact	Immediately flush eyes with plenty of cool water for at least 15 minutes, holding eyelids apart. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation persists.
Ingestion	Rinse mouth with water. Do not induce vomiting unless directed by medical personnel. Seek medical attention or contact local poison control center if large amounts are ingested.

Most Important Symptoms and Effects: Eye irritation, possible respiratory irritation from dust. Low order toxicity.

Medical Attention: Treat symptomatically. No specific antidote.

5. Fire-Fighting Measures

Suitable Extinguishing Media	Use extinguishing media suitable for the surrounding combustible materials. Foam, dry powder, carbon dioxide (CO ₂), water spray.
Unsuitable Extinguishing Media	Water jet (may spread fire).

Specific Hazards	Combustible material. Fine dust dispersed in air may form explosive mixtures. Keep away from heat, sparks, and open flame.
Firefighter Protection	Wear proper protective equipment. Use self-contained breathing apparatus. Exercise caution when fighting any chemical fire. Use water spray or fog for cooling exposed containers.
Hazardous Combustion Products: Carbon oxides (CO, CO ₂).	

6. Accidental Release Measures

Personal Precautions	Equip cleanup crew with proper protection. Respiratory protection equipment may be necessary. Avoid generation and spreading of dust. Avoid contact with eyes.
Environmental Precautions	Prevent entry to sewers and public waters. Notify authorities if product enters sewers or public waters. Avoid any pollution of ground, surface or underground water.
Containment and Cleanup	To prevent the formation of dust, avoid dry sweeping. Use vacuum or cleaning systems with water spray. Collect spilled material using suitable disposal containers. Dispose of in accordance with local regulations.

Additional Information: Spilled material (both wet and dry) may cause slippery conditions. Care should be exercised when walking on spills.

7. Handling and Storage

7.1 Precautions for Safe Handling

Avoid generation and spreading of dust. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Handle in accordance with good industrial hygiene and safety procedures. Avoid contact with eyes.

7.2 Conditions for Safe Storage

Storage Temperature	Store in a cool, dry location. Recommended: 15-25°C. Keep away from heat and direct sunlight.
Storage Conditions	Store in a cool and dry location. Keep container tightly closed when not in use. Protect from humidity, sunshine and high temperature.
Incompatible Materials	Strong acids, strong alkaline substances, strong oxidizers.
Container Materials	Amber glass, aluminum, HDPE. Protect from light.
Shelf Life	Unopened containers: minimum 24 months at recommended storage conditions, protected from light.

8. Exposure Controls/Personal Protection

8.1 Control Parameters

No specific occupational exposure limits established for this product. For nuisance dust: OSHA PEL 15 mg/m³ (total), 5 mg/m³ (respirable); ACGIH TLV 10 mg/m³ (inhalable), 3 mg/m³ (respirable).

8.2 Exposure Controls

Engineering Controls	Use exhaust ventilation, if required, to maintain dust concentration below exposure limits. Use local exhaust ventilation or other engineering controls to minimize dust exposure.
Eye/Face Protection	Use tightly sealed goggles or safety glasses with side shields.
Hand Protection	If skin contact or contamination of clothing is likely, protective clothing should be worn. Use protective gloves (nitrile or latex recommended).
Skin Protection	Wear appropriate protective clothing. Laboratory coat or coveralls recommended.
Respiratory Protection	In case of insufficient ventilation or dust generation, wear suitable respiratory equipment (dust mask, P2 filter).
Hygiene Measures	Wash hands thoroughly before breaks and at end of work. Do not eat, drink, or smoke while handling. Remove contaminated clothing before reuse.

9. Physical and Chemical Properties

Appearance	Dark amber viscous oil
Odor	Slightly sweet botanical odor, characteristic of licorice
Odor Threshold	Not determined
pH	Not applicable (paste/solid)
Melting/Softening Point	Not determined
Boiling Point	Not applicable
Flash Point	>100°C (estimated)
Evaporation Rate	Not applicable
Flammability	Combustible material
Upper/Lower Explosion Limits	Not determined (dust explosion possible)
Vapor Pressure	Not applicable
Vapor Density	Not applicable
Relative Density	Not determined
Water Solubility	Insoluble (lipophilic extract)
Solubility in Other Solvents	Good solubility in oils, ethanol, propylene glycol
Partition Coefficient (log Kow)	Not determined
Auto-ignition Temperature	Not determined
Decomposition Temperature	Not determined
Viscosity	Viscous paste
Glabridin Content	>6%
Glycyrrhizic Acid Content	<0.1% (lipophilic extract)
Solvent Residues	Ethanol <1800 ppm

10. Stability and Reactivity

Reactivity	This material presents no significant reactivity hazard.
Chemical Stability	Chemically stable under recommended storage conditions. Glabridin may undergo oxidation upon prolonged exposure to light and air.
Hazardous Reactions	Hazardous polymerization will not occur.
Conditions to Avoid	Humidity, direct sunlight, high temperature. Avoid generation of dust clouds.
Incompatible Materials	Strong acids, strong alkaline substances, strong oxidizing agents.
Hazardous Decomposition Products	Carbon oxides upon thermal decomposition.

11. Toxicological Information

11.1 Information on Toxicological Effects

Acute Oral Toxicity	Low toxicity. Licorice root extracts are generally recognized as safe (GRAS) for food use. LD50 (rat, oral) for glycyrrhizic acid >5000 mg/kg.
Acute Dermal Toxicity	Low toxicity. Glabridin is widely used in cosmetics for topical application.
Acute Inhalation Toxicity	Prolonged exposure to dust can cause respiratory effects. May cause mild irritation.
Skin Corrosion/Irritation	Adverse skin effects should be prevented by normal care and personal hygiene. Not classified as skin irritant.
Serious Eye Damage/Irritation	Classification: Eye Irritation Category 2B (H320). Eye contact may cause irritation.
Respiratory/Skin Sensitization	Not classified as a sensitizer based on available data.
Germ Cell Mutagenicity	Not classified. No mutagenic effects reported for glabridin or licorice extracts.
Carcinogenicity	Not classified. Not listed by IARC, NTP, or OSHA. Glabridin has shown anti-proliferative properties in some studies.
Reproductive Toxicity	Glabridin exhibits weak estrogenic activity. High intake of glycyrrhizin may affect hormone levels.
STOT - Single Exposure	Not classified.
STOT - Repeated Exposure	High chronic intake of glycyrrhizin may cause hypertension and hypokalemia. This extract has very low glycyrrhizin content (<0.1%).
Aspiration Hazard	Not classified (paste/solid).

12. Ecological Information

Toxicity	No specific ecotoxicity data available. Expected to have low toxicity to aquatic organisms based on natural origin.
Persistence and Degradability	Expected to be biodegradable (natural plant extract).
Bioaccumulative Potential	Not available. Low bioaccumulation potential expected.
Mobility in Soil	Not available. Insoluble in water.
PBT/vPvB Assessment	Does not meet PBT or vPvB criteria according to REACH.
Other Adverse Effects	Avoid any pollution of ground, surface or underground water.

13. Disposal Considerations

Product Disposal	Dispose of contents and/or container in accordance with local, state or provincial and federal regulations. Check with local municipal authority to ensure compliance.
Contaminated Packaging	Dispose of in accordance with local regulations. Empty containers may contain residues.
Waste Code (EU)	EWC: 02 03 04 — Materials unsuitable for consumption or processing (if applicable)

14. Transport Information

This product is not classified as dangerous goods for transport.

UN Number	Not regulated
UN Proper Shipping Name	Not applicable
Transport Hazard Class	Not applicable
Packing Group	Not applicable
Environmental Hazards	Not classified as marine pollutant
Land Transport (ADR/RID)	Not regulated
Sea Transport (IMDG)	Not regulated
Air Transport (IATA)	Not regulated

Special Precautions: Keep container upright. Protect from heat and direct sunlight. Ensure adequate ventilation.

15. Regulatory Information

15.1 Safety, Health and Environmental Regulations

EU Legislation:

- Regulation (EC) No 1907/2006 (REACH) — Subject to registration requirements
- Regulation (EC) No 1272/2008 (CLP) — Classified as Eye Irrit. 2B
- Regulation (EC) No 1223/2009 — Permitted for use in cosmetic products

US Legislation:

- TSCA (Toxic Substances Control Act): Listed
- FDA: Licorice root extract is GRAS (Generally Recognized as Safe) for food use
- SARA 313: Not listed
- CERCLA: Not listed
- California Proposition 65: Not listed

International Inventories:

Inventory	Status
TSCA (USA)	Listed
DSL (Canada)	Listed
EINECS/ELINCS (EU)	Listed (283-895-2)
IECSC (China)	Listed
AICS (Australia)	Listed
KECL (Korea)	Listed
PICCS (Philippines)	Listed

15.2 Chemical Safety Assessment: Not performed.

16. Other Information

Product Specifications

Botanical Source	Glycyrrhiza glabra L. (Licorice, Liquorice)
Plant Part Used	Root and rhizome, dried
Extraction Method	Supercritical CO ₂ extraction with ethanol co-solvent
Country of Origin	Turkey
Processing Location	Turkey
Key Active Compound	Glabridin (>6%)
Glycyrrhizic Acid	<0.1% (lipophilic extract)
Solvent Residues	Ethanol <1800 ppm (CO ₂ process with co-solvent)
Shelf Life	24 months from date of manufacture (unopened)
Storage	Store at 15-25°C, protect from light and moisture

Traditional Use and Applications

Licorice (*Glycyrrhiza glabra* L.) is a perennial legume native to the Mediterranean region, Western Asia, and the Middle East. The root has been used in traditional medicine for thousands of years as an expectorant, demulcent, and anti-inflammatory agent. Modern research has identified glabridin as one of the most bioactive components of licorice root, exhibiting potent antioxidant, anti-inflammatory, and skin-lightening properties. Glabridin inhibits tyrosinase activity and melanogenesis, making it a valuable ingredient in cosmetic formulations for hyperpigmentation treatment. Unlike conventional water-based licorice extracts which are rich in glycyrrhizic acid (associated with potential hypertensive effects at high doses), this supercritical CO₂ extract selectively concentrates the lipophilic fraction rich in glabridin and other prenylated flavonoids while leaving behind the water-soluble glycyrrhizin. This results in a safer profile for cosmetic and nutraceutical applications.

Revision Information

Revision Date: 10.01.2026

Revision: Initial Release

Key Literature References (Primary Academic Sources):

- Cho Y-K, et al. (2019) Preparation of High-quality Glabridin Extract from *Glycyrrhiza glabra*. *Biotechnol. Bioprocess Eng.* 24:759-766.
- Kim H-S, et al. (2004) Effects of modifiers on the supercritical CO₂ extraction of glycyrrhizin from licorice. *Biotechnol. Bioprocess Eng.* 9:447-453.
- Quintana SE, et al. (2019) Antioxidant and antimicrobial assessment of licorice supercritical extracts. *Ind. Crops Prod.* 139:111496.
- Nazari S, et al. (2017) Toxicological effects of *Glycyrrhiza glabra* (licorice): a review. *Phytother. Res.* 31:1635-1650.
- Simmler C, et al. (2013) Phytochemistry and biological properties of glabridin. *Fitoterapia* 90:160-184.
- Aoki F, et al. (2007) Clinical safety of licorice flavonoid oil (LFO). *Food Chem. Toxicol.* 45:2261-2271.

Hazard Statement Codes:

H320: Causes eye irritation

Abbreviations:

CAS: Chemical Abstracts Service | EC: European Community | GHS: Globally Harmonized System | CLP: Classification, Labelling and Packaging | REACH: Registration, Evaluation, Authorisation and Restriction of Chemicals | TSCA: Toxic Substances Control Act | PBT: Persistent, Bioaccumulative, Toxic | vPvB: very Persistent, very Bioaccumulative | NFPA: National Fire Protection Association | HMIS: Hazardous Materials Identification System | GRAS: Generally Recognized as Safe | INCI: International Nomenclature of Cosmetic Ingredients | STOT: Specific Target Organ Toxicity | LD50: Lethal Dose 50%

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information, and belief at the date of its publication. The information given is designed only as 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. Users must exercise their independent judgment in determining its appropriateness for a particular purpose.

End of Safety Data Sheet