

PLUME™

THE ART OF ATMOSPHERE

Safety Data Sheet

This Safety Data Sheet was prepared using supplier hazard data and classified in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Revision 1.0 | August 26, 2026

24-HOUR EMERGENCY CONTACT

CHEMTREC 1-800-424-9300 Contract

ID: CCN1026268

SECTION 1

Identification

Product Name	February
Product Code / SKU	P-CA-44
Product Type	Fragrance Oil Blend
Collection	Calendar
Manufacturer	PLUME™ Louisiana, USA www.PlumeFragrance.com contact@plumefragrance.com

Recommended Use

Fragrance ingredient for candles, melts, soap and home fragrance products. PLUME™ fragrances are carefully developed to deliver exceptional preformance in candle applications while remaining versatile for use across multiple fragranced products when used within applicable IFRA usage limits.

Restrictions on Use

Supplied as a fragrance ingredient for further manufacturing only. Not intended to be used undiluted or as a finished consumer product. Do not use in food, drugs, or apply directly to skin unless the finished product has been appropriately formulated, evaluated for safety, and complies with applicable regulations and IFRA Standards.

Prepared By PLUME™ Regulatory Affairs

Hazard Identification

GHS US classification

Flammable liquid, Category 4 — H227 Combustible liquid.
Skin corrosion/irritation, Category 2 — H315 Causes skin irritation.
Serious eye damage/eye irritation, Category 2 — H319 Causes serious eye irritation.
Skin sensitization, Category 1 — H317 May cause an allergic skin reaction.

GHS Label Elements

Signal word (GHS US): WARNING

Hazard statements (GHS US):

H227 – Combustible liquid.
H315 – Causes skin irritation.
H317 – May cause an allergic skin reaction.
H319 – Causes serious eye irritation.

Precautionary statements

P210 – Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P261 – Avoid breathing dust, fume, gas, mist, vapors, spray.
P264 – Wash hands, forearms and face thoroughly after handling.
P272 – Contaminated work clothing must not be allowed out of the workplace.
P280 – Wear protective gloves.
P302+P352 – IF ON SKIN: Wash with plenty of water.
P305+P351+P338 – IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P321 – Specific treatment (see supplemental first aid instruction on this label).
P333+P313 – If skin irritation or rash occurs: Get medical advice or attention.
P337+P313 – If eye irritation persists: Get medical advice or attention.
P362+P364 – Take off contaminated clothing and wash it before reuse.
P370+P378 – In case of fire: Use appropriate media to extinguish.
P403 – Store in a well-ventilated place.
P501 – Dispose of contents and/or container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulations.

GHS US labeling

Hazard pictograms (GHS US)



Composition/Information on ingredients

Substances

Not applicable

Mixtures

Name	Product identifier	%	GHS US classification
1-(1,2,3,4,5,6,7,8-Octahydro-2,3,8,8-tetramethyl-2-naphthalenyl)ethanone (Iso E Super)	CAS-No. 54464-57-2	10–30	Skin Irrit. 2, H315; Skin Sens. 1B, H317
ALDEHYDE C 16	CAS-No. 77-83-8	1–5	Skin Sens. 1B, H317
2H-pyran-4-ol, tetrahydro-4-methyl-2-(2-methylpropyl)-	CAS-No. 63500-71-0	1–5	Eye Irrit. 2A, H319
LINALYL ACETATE	CAS-No. 115-95-7	1–5	Flam. Liq. 4, H227; Skin Irrit. 2, H315; Eye Irrit. 2B, H320; Skin Sens. 1B, H317
ETHYL VANILLIN	CAS-No. 121-32-4	1–5	Eye Irrit. 2B, H320
LIMONENE	CAS-No. 5989-27-5	1–5	Flam. Liq. 3, H226; Skin Irrit. 2, H315; Skin Sens. 1B, H317; Asp. Tox. 1, H304
2-ethyl-3-hydroxypyran-4-one	CAS-No. 4940-11-8	1–5	Acute Tox. 4 (Oral), H302
2-Ethyl-4-(2,2,3-trimethyl-3-cyclopenten-1-yl)-2-buten-1-ol	CAS-No. 28219-61-6	1–5	Skin Irrit. 2, H315; Eye Irrit. 2A, H319
LINALOOL	CAS-No. 78-70-6	1–5	Flam. Liq. 4, H227; Skin Irrit. 2, H315; Eye Irrit. 2A, H319; Skin Sens. 1B, H317
BENZYL BENZOATE	CAS-No. 120-51-4	1–5	Acute Tox. 4 (Oral), H302
PATCHOULI TERPENES	CAS-No. 8014-09-3	1–5	Skin Sens. 1B, H317; Asp. Tox. 1, H304
CASHMERAN	CAS-No. 33704-61-9	1–5	Skin Irrit. 2, H315; Eye Irrit. 2A, H319; Skin Sens. 1B, H317
DAMASCONE DELTA	CAS-No. 57378-68-4	0.1–1	Acute Tox. 4 (Oral), H302; Skin Irrit. 2, H315; Skin Sens. 1A, H317
CITRAL	CAS-No. 5392-40-5	0.1–1	Skin Irrit. 2, H315; Eye Irrit. 2A, H319

Description of first aid measures

First-aid measures general: Call a poison center/doctor/physician if you feel unwell.

First-aid measures after inhalation: Remove person to fresh air and keep comfortable for breathing.

First-aid measures after skin contact: Wash skin with plenty of water. Take off contaminated clothing. If skin irritation or rash occurs: Get medical advice/attention.

First-aid measures after eye contact: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

First-aid measures after ingestion: Rinse mouth. Call a poison center/doctor/physician if you feel unwell.

Most important symptoms and effects (acute and delayed)

Symptoms/effects after inhalation: None under normal conditions.

Symptoms/effects after skin contact: May cause an allergic skin reaction.

Symptoms/effects after eye contact: Eye irritation.

Symptoms/effects after ingestion: Harmful if swallowed.

Immediate medical attention and special treatment, if necessary

Treat symptomatically.

Fire-Fighting measures

Suitable (and unsuitable extinguishing media

Suitable extinguishing media :Water spray. Dry powder. Foam. Carbon dioxide.

Unsuitable extinguishing media: Do not use a heavy water stream.

Specific Hazards

Fire Hazard: Combustible liquid.

Explosion Hazard: No direct explosion hazard

Special protective equipment and precautions for fire-fighters

Firefighting instructions

Fight fire from safe distance and protected location. Do not enter fire area without proper protective equipment, including respiratory protection.

Protection during firefighting

Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus.

Complete protective clothing.

Accidental Release Measures

Personal Precautions, Protective Equipment and Emergency Procedures

General Measures

Stop leak if safe to do so. Notify authorities if product enters sewers or public waters. Absorb spillage to prevent material damage.

For Non-Emergency Personnel

Protective Equipment

Wear recommended personal protective equipment.

Emergency Procedures

Ventilate spillage area. Avoid contact with skin and eyes. Avoid breathing dust/fume/gas/mist/vapors/spray.

For Emergency Responders

Protective Equipment

Do not attempt to take action without suitable protective equipment. For further information refer to Section 8: Exposure Controls/Personal Protection.

Emergency Procedures

Evacuate unnecessary personnel. Stop leak if safe to do so.

Environmental Precautions

Avoid release to the environment. Prevent entry into drains, surface waters, groundwater, and soil.

Methods and Material for Containment and Cleaning Up

Absorb spilled material with sand, earth, vermiculite, or other inert absorbent material. Collect and place in suitable containers for disposal. Dispose of in accordance with local, state, and federal regulations.

Section 7

Handling and Storage

Precautions for Safe Handling

Ensure good ventilation of the work station. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Ground/bond container and receiving equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Flammable vapors may accumulate in the container. Use explosion-proof equipment. Wear personal protective equipment. Avoid contact with skin and eyes. Avoid breathing dust/fume/gas/mist/vapors/spray.

Hygiene measures

Wash contaminated clothing before reuse. Contaminated work clothing should not be allowed out of the workplace. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

Specific end use(s)

Fragrances: Use in accordance with good manufacturing and industrial hygiene practices

Conditions for Safe Storage, Including Any Incompatibilities

Technical measures: : Keep in a cool, well-ventilated place away from heat.

Storage conditions: : Store in a well-ventilated place. Keep cool.

Packaging materials: Always store product in container of same material as original container.

Exposure Controls

Control parameters

BENZYL BENZOATE (120-51-4)

Not applicable

PATCHOULI TERPENES (8014-09-3)

Not applicable

LINALYL ACETATE (115-95-7)

Not applicable

LINALOOL (78-70-6)

Not applicable

1-(1,2,3,4,5,6,7,8-Octahydro-2,3,8-tetramethyl-2-naphthalenyl)ethanone (Iso E Super) (54464-57-2)

Not applicable

2H-pyran-4-ol, tetrahydro-4-methyl-2-(2-methylpropyl)- (63500-71-0)

Not applicable

ETHYL VANILLIN (121-32-4)

Not applicable

2-ethyl-3-hydroxypyran-4-one (4940-11-8)

Not applicable

LIMONENE (5989-27-5)

Not applicable

DAMASCONE DELTA (57378-68-4)

Not applicable

CITRAL (5392-40-5)

ACGIH — Local name: Citral

ACGIH — TLV® TWA: 5 ppm (IFV – Inhalable fraction and vapor)

ACGIH — Remark: TLV® Basis: Body weight eff; URT irr; eye dam. Notations: Skin; DSEN; A4 (Not classifiable as a Human Carcinogen)

ACGIH — Regulatory reference: ACGIH 2024

CASHMERAN (33704-61-9)

Not applicable

2-Ethyl-4-(2,2,3-trimethyl-3-cyclopenten-1-yl)-2-buten-1-ol (28219-61-6)

Not applicable

ALDEHYDE C 16 (77-83-8)

Not applicable

Appropriate engineering controls

Appropriate engineering controls: Ensure good ventilation of the work station.

Environmental exposure controls: Avoid release to the environment.

Physical and Chemical Properties

Property	Value
Physical state	Liquid
Color	No data available
Odor	No data available
Odor threshold	No data available
pH	No data available
Melting point	Not applicable
Freezing point	No data available
Boiling point	No data available
Flash point	≈ 199.2°F.
Relative evaporation rate (butyl acetate=1)	No data available
Flammability	Not applicable
Vapor pressure	No data available
Relative vapor density at 20°C	No data available
Relative density	No data available
Solubility	No data available
Partition coefficient n-octanol/water (Log Pow)	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Viscosity, kinematic	No data available
Viscosity, dynamic	No data available
Explosion limits	No data available
Explosive properties	No data available
Oxidizing properties	No data available

Section 10

Stability and Reactivity

Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

Chemical Stability

Stable under normal conditions of storage and handling.

Possibility of Hazardous Reactions

Not expected under normal conditions of use.

Conditions to Avoid

None under recommended storage and handling conditions (see section 7).

Incompatible Materials

Avoid contact with hot surfaces. Heat. No flames, no sparks. Eliminate all sources of ignition.

Hazardous Decomposition Products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Toxicological Information

This mixture has not been tested as a whole for health effects. Health effects have been calculated using the methods outlined in the UN GHS.

Information on toxicological effects

Acute toxicity (oral): No data available
 Acute toxicity (dermal): No data available
 Acute toxicity (inhalation): No data available

BENZYL BENZOATE (120-51-4)

LD50 oral rat: > 2000 mg/kg body weight (OECD 401: Acute Oral Toxicity, Rat, Male/female, Experimental value, Oral, 14 day(s))
 LD50 dermal rabbit: > 2 ml/kg (Modification of Draize 1959 method, 4 h, Rabbit, Experimental value, Dermal)
 ATE US (oral): 1160 mg/kg body weight

LINALOOL (78-70-6)

LD50 oral rat: 2790 mg/kg body weight (Equivalent or similar to OECD 401, Rat, Male/female, Experimental value, Oral, 14 day(s))
 LD50 dermal rabbit: 5610 mg/kg body weight (Equivalent or similar to OECD 402, 24 h, Rabbit, Experimental value, Dermal, 7 day(s))
 ATE US (oral): 2790 mg/kg body weight
 ATE US (dermal): 5610 mg/kg body weight

ETHYL VANILLIN (121-32-4)

LD50 oral rat: > 3160 mg/kg body weight (OECD 401: Acute Oral Toxicity, Rat, Male/female, Experimental value, Oral, 14 day(s))
 LD50 dermal rat: > 2000 mg/kg body weight (OECD 402: Acute Dermal Toxicity, 24 h, Rat, Male/female, Experimental value, Dermal, 14 day(s))
 ATE US (oral): 3000 mg/kg body weight

2-ethyl-3-hydroxypyran-4-one (4940-11-8)

LD50 oral rat: 1150 mg/kg (Rat, Oral)
 LD50 dermal rabbit: > 5000 mg/kg (Rabbit, Dermal)
 ATE US (oral): 1150 mg/kg body weight

LIMONENE (5989-27-5)

LD50 oral rat: > 2000 mg/kg body weight (OECD 423: Acute Oral Toxicity – Acute Toxic Class Method, Rat, Female, Read-across, Oral)
 LD50 dermal rabbit: > 5000 mg/kg body weight (Equivalent or similar to OECD 402, Rabbit, Weight of evidence, Dermal)

DAMASCONONE (57378-68-4)

ATE US (oral): 1400 mg/kg body weight

2-Ethyl-4-(2,2,3-trimethyl-3-cyclopenten-1-yl)-2-buten-1-ol (28219-61-6)

LD50 oral rat: > 2000 mg/kg body weight (OECD 401: Acute Oral Toxicity, 2 week(s), Rat, Male/female, Experimental value, Oral)
 LD50 dermal rat: > 5 ml/kg (OECD 402: Acute Dermal Toxicity, 24 h, Rat, Male/female, Experimental value, Dermal)

ALDEHYDE C 16 (77-83-8)

LD50 oral rat: 5470 mg/kg (Rat, Male/female, Weight of evidence, Oral, 14 day(s))
 LD50 dermal rat: > 2000 mg/kg body weight (OECD 402: Acute Dermal Toxicity, 24 h, Rat, Male/female, Experimental value, Dermal)
 ATE US (oral): 5470 mg/kg body weight

Remaining toxicological classifications

Skin corrosion/irritation: Causes skin irritation.
 Serious eye damage/irritation: Causes serious eye irritation.
 Respiratory or skin sensitization: May cause an allergic skin reaction.
 Germ cell mutagenicity: No data available
 Carcinogenicity: No data available

LIMONENE (5989-27-5)

IARC group: 3 – Not classifiable

Reproductive toxicity: No data available
 STOT-single exposure: No data available
 STOT-repeated exposure: No data available

LINALOOL (78-70-6)

NOAEL (dermal, rabbit, 90 days): 250 mg/kg body weight
 Animal: rat; Guideline: OECD Guideline 411 (Subchronic Dermal Toxicity: 90-Day Study)

Aspiration hazard: No data available
 Viscosity, kinematic: No data available
 Symptoms/effects after inhalation: None under normal conditions.
 Symptoms/effects after skin contact: Irritation. May cause an allergic skin reaction.

Ecological Information

Toxicity

Ecology – general:

The product is not considered harmful to aquatic organisms nor to cause long-term adverse effects in the environment.

BENZYL BENZOATE (120-51-4)

LC50 – Fish [1]: 2.32 mg/L (EU Method C.1, 96 h, Danio rerio, Semi-static system, Fresh water, Experimental value, GLP)

EC50 – Crustacea [1]: 3.09 mg/L (OECD 202: Daphnia sp. Acute Immobilisation Test, 48 h, Daphnia magna, Static system, Fresh water, Experimental value, GLP)

LINALYL ACETATE (115-95-7)

LC50 – Fish [1]: 11 mg/L (OECD 203: Fish, Acute Toxicity Test, 96 h, Cyprinus carpio)

EC50 – Crustacea [1]: 15 mg/L (OECD 202: Daphnia sp. Acute Immobilisation Test, 48 h, Daphnia magna)

LINALOOL (78-70-6)

LC50 – Fish [1]: 27.8 mg/L (OECD 203: Fish, Acute Toxicity Test, 96 h, Oncorhynchus mykiss, Static system, Fresh water, Experimental value, GLP)

EC50 – Crustacea [1]: 59 mg/L (OECD 202: Daphnia sp. Acute Immobilisation Test, 48 h, Daphnia magna, Static system, Fresh water, Experimental value, GLP)

ErC50 algae: 156.7 mg/L (DIN 38412-9, 96 h, Desmodesmus subspicatus, Static system, Fresh water, Experimental value, Normal concentration)

ETHYL VANILLIN (121-32-4)

LC50 – Fish [1]: 87.6 mg/L (Equivalent or similar to OECD 203, 96 h, Pimephales promelas, Flow-through system, Fresh water, Experimental value)

EC50 – Crustacea [1]: 36.79 mg/L (OECD 202: Daphnia sp. Acute Immobilisation Test, 48 h, Daphnia magna, Static system, Fresh water, Read-across, GLP)

ErC50 algae: 120 mg/L (OECD 201: Alga, Growth Inhibition Test, 72 h, Pseudokirchneriella subcapitata, Static system, Fresh water, Read-across, GLP)

LIMONENE (5989-27-5)

LC50 – Fish [1]: 720 µg/L (OECD 203: Fish, Acute Toxicity Test, 96 h, Pimephales promelas, Flow-through system, Fresh water, Experimental value, Lethal)

EC50 – Crustacea [1]: 0.36 mg/L (OECD 202: Daphnia sp. Acute Immobilisation Test, 48 h, Daphnia magna, Static system, Fresh water, Experimental value, GLP)

2-Ethyl-4-(2,2,3-trimethyl-3-cyclopenten-1-yl)-2-buten-1-ol (28219-61-6)

LC50 – Fish [1]: 11 mg/L (OECD 201: Alga, Growth Inhibition Test, 72 h, Pseudokirchneriella subcapitata, Static system, Fresh water, Experimental value, GLP)

ErC50 algae: 2.5 mg/L (US EPA, 96 h, Selenastrum capricornutum, Static system, Fresh water, Experimental value, GLP)

ALDEHYDE C 16 (77-83-8)

LC50 – Fish [1]: 4.2 mg/L (OECD 203: Fish, Acute Toxicity Test, 96 h, Oncorhynchus mykiss, Semi-static system, Fresh water, Experimental value, GLP)

ErC50 algae: 36 mg/L (OECD 201: Alga, Growth Inhibition Test, 72 h, Pseudokirchneriella subcapitata, Static system, Fresh water, Experimental value, GLP)

Persistence and degradability

BENZYL BENZOATE (120-51-4): Readily biodegradable in water.

LINALYL ACETATE (115-95-7): Readily biodegradable in water.

LINALOOL (78-70-6): Readily biodegradable in water.

2H-pyran-4-ol, tetrahydro-4-methyl-2-(2-methylpropyl)- (63500-71-0): Biodegradability in water: no data available.

ETHYL VANILLIN (121-32-4): Readily biodegradable in water.

THOD: 1.81 g O₂/g substance

BOD (5% of ThOD): 0.529 (5 day(s), Literature study)

2-ethyl-3-hydroxypyran-4-one (4940-11-8): Biodegradability in water: no data available.

LIMONENE (5989-27-5): Readily biodegradable in water.

ThOD: 3.29 g O₂/g substance

2-Ethyl-4-(2,2,3-trimethyl-3-cyclopenten-1-yl)-2-buten-1-ol (28219-61-6): Not readily biodegradable in water.

ThOD: 3 g O₂/g substance

ALDEHYDE C 16 (77-83-8): Not readily biodegradable in water.

Bioaccumulative potential

BENZYL BENZOATE (120-51-4)

BCF – Fish [1]: 2.286 (BCFBAF v3.00, Pisces, QSAR)

Log Pow: 3.97 (Experimental value, 25 °C)

Bioaccumulative potential: Low potential for bioaccumulation (Log Kow < 4).

LINALYL ACETATE (115-95-7)

Log Pow: 3.93 (Experimental value)
 Bioaccumulative potential: Low potential for bioaccumulation (Log Kow < 4).

LINALOOL (78-70-6)

Log Pow: 2.84 (Experimental value, Equivalent or similar to OECD 107, 25 °C)
 Bioaccumulative potential: Low potential for bioaccumulation (Log Kow < 4).

2H-pyran-4-ol, tetrahydro-4-methyl-2-(2-methylpropyl)-(63500-71-0)

Bioaccumulative potential: No bioaccumulation data available.

ETHYL VANILLIN (121-32-4)

Log Pow: 1.58 (Experimental value, Equivalent or similar to OECD 107, 25 °C)
 Bioaccumulative potential: Low potential for bioaccumulation (Log Kow < 4).

2-ethyl-3-hydroxypyran-4-one (4940-11-8)

Bioaccumulative potential: No bioaccumulation data available.

LIMONENE (5989-27-5)

BCF – Fish [1]: 864.8–1022 (Pisces, QSAR, Fresh weight)
 Log Pow: 4.38 (Experimental value, OECD 117, HPLC method, 37 °C)
 Bioaccumulative potential: Potential for bioaccumulation (4 ≤ Log Kow ≤ 5).

Section 13

2-Ethyl-4-(2,2,3-trimethyl-3-cyclopenten-1-yl)-2-buten-1-ol (28219-61-6)

BCF – Other aquatic organisms [1]: 667 (Other, QSAR)
 Log Pow: 4.4 (Experimental value, OECD 117, HPLC method, 35 °C)
 Bioaccumulative potential: Potential for bioaccumulation (500 ≤ BCF ≤ 5000).

ALDEHYDE C 16 (77-83-8)

Log Pow: 2.4–2.8 (Experimental value, OECD 117, HPLC method, 25 °C)
 Bioaccumulative potential: Low potential for bioaccumulation (Log Kow < 4).

Mobility in soil**BENZYL BENZOATE (120-51-4)**

Surface tension: 0.027 N/m (210 °C)
 Organic Carbon Normalized Adsorption Coefficient (Log Koc): 3.8
 Ecology – soil: Low potential for mobility in soil.

LINALYL ACETATE (115-95-7)

Ecology – soil: Adsorbs into the soil.

LINALOOL (78-70-6)

Surface tension: 8.3 mN/m (20 °C; ISO 9101)
 Ecology – soil: No (test) data on mobility of the substance available.

2H-pyran-4-ol, tetrahydro-4-methyl-2-(2-methylpropyl)-(63500-71-0)

Ecology – soil: No (test) data on mobility of the substance available.

ETHYL VANILLIN (121-32-4)

Organic Carbon Normalized Adsorption Coefficient (Log Koc): 3.092
 Ecology – soil: Low potential for mobility in soil.

LIMONENE (5989-27-5)

Ecology – soil: Adsorbs into the soil.

2-Ethyl-4-(2,2,3-trimethyl-3-cyclopenten-1-yl)-2-buten-1-ol (28219-61-6)

Organic Carbon Normalized Adsorption Coefficient (Log Koc): 2.57 (log Koc, Other, QSAR)
 Ecology – soil: Low potential for adsorption in soil.

Disposal Considerations

Category	Requirement
Regional waste regulation	Disposal must be done according to official regulations.
Waste treatment methods	Dispose of contents/container in accordance with licensed collector's sorting instructions.
Sewage disposal recommendations	Disposal must be done according to official regulations.
Product/Packaging disposal recommendations	Disposal must be done according to official regulations.
Additional information	Do not re-use empty containers.

Section 14

Transport Information

Department of Transportation (DOT)

In accordance with DOT

Transport document description (DOT)

UN3082 Environmentally hazardous substances, liquid, n.o.s. (BENZYL BENZOATE), 9, III

UN No. (DOT): UN3082

Proper Shipping Name (DOT): Environmentally hazardous substances, liquid, n.o.s. (BENZYL BENZOATE)

Class (DOT): 9 – Class 9 (Miscellaneous hazardous materials)

Packing Group (DOT): III – Minor Danger

Hazard Label (DOT): 9



DOT Packaging Non-Bulk (49 CFR 173.xxx): 203

DOT Packaging Bulk (49 CFR 173.xxx): 241

DOT Symbols: G – Identifies PSN requiring a technical name

DOT Special Provisions (49 CFR 172.102)

8 – A hazardous substance that is not a hazardous waste may be shipped under the shipping description “Other regulated substances, liquid or solid, n.o.s.,” as appropriate. In addition, for solid materials, special provision B54 applies.

146 – This description may be used for a material that poses a hazard to the environment but does not meet the definition for a hazardous waste or a hazardous substance, as defined in §171.8 of this subchapter, or any hazardous substance defined in Part 173 of this subchapter, if it is designated as environmentally hazardous by the Competent Authority of the country of origin, transit or destination.

173 – An appropriate generic entry may be used for this material.

335 – Mixtures of solids that are not subject to this subchapter and environmentally hazardous liquids or solids may be classified as “Environmentally hazardous substances, solid, n.o.s.,” UN3077 and may be transported under this entry, provided there is no free liquid visible at the time the material is loaded or at the time the packaging or transport unit is closed. Each transport unit must be leak-proof when used as bulk packaging.

IB3 – Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1 and 31HA2, 31HB2, 31HN2, 31HD2 and 31HH2). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50°C (1.1 bar at 122°F), or 130 kPa at 55°C (1.3 bar at 131°F) are authorized, except for UN2672 (also see Special Provision IP8 in Table 2 for UN2672).

T4 – 2.65 178.274(d)(2) Normal 178.275(d)(3)

TP1 – The maximum degree of filling must not exceed the degree of filling determined by the following: Degree of filling = $97 / [1 + \alpha (tr - tf)]$, where: tr is the maximum mean bulk temperature during transport, and tf is the temperature in degrees Celsius of the liquid during filling.

TP29 – A portable tank having a minimum test pressure of 1.5 bar (150.0 kPa) may be used provided the calculated test pressure is 1.5 bar or less based on the MAWP of the hazardous materials, as defined in 178.275 of this subchapter, where the test pressure is 1.5 times the MAWP.

Additional DOT Information

DOT Packaging Exceptions (49 CFR 173.xxx): 155

DOT Quantity Limitations Passenger Aircraft/Rail (49 CFR 173.27): No Limit

DOT Quantity Limitations Cargo Aircraft Only (49 CFR 175.75): No Limit

DOT Vessel Stowage Location:

A – The material may be stowed “on deck” or “under deck” on a cargo vessel and on a passenger vessel.

Emergency Response Guide (ERG) Number: 171

Other information:

No supplementary information available.

Section 16

Other Information

Date: 08/26/2026

Description: Initial release

US Federal Regulations

No additional information available.

This product or mixture is not known to contain a toxic chemical or chemicals in excess of the applicable de minimis concentration as specified in 40 CFR §372.38(a) subject to the reporting requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.