Section 1. Identification

Product name:	D'Limonene FG
Synonyms:	d-Limonene; Natural orange terpene.
Identified uses:	Botanical insecticide, natural solvent, synthesis of flavorings and fragrances, and other uses.
Company:	Distribuidora Industrial Paranaense Ltda.
Adress:	Rua Stefano Soik, n.º 20, CIC, CEP 81.420-586 - Curitiba - PR
Telephone:	+55 41 3245-0777
Emergency telephone number:	
Disque-Intoxicação (Anvisa)	0800-722-6001
Fax:	+55 41 3245-0777
e-mail:	dipa@dipaquimica.com.br

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Section 2. Hazard Identification

2.1. Classification of the substance or mixture:

GHS Classification in accordance with ABNT NBR 14725 Standard

Flammable liquids – Category 3
Acute toxicity - Oral – Category 5
Skin corrosion/irritation – Category 2
Skin sensitization – Category 1
Aspiration hazard – Category 1
Hazardous to the aquatic environment - Short-term (acute) hazard – Category 1
Hazardous to the aquatic environment - Long-term (chronic) hazard – Category 3

2.2. Other hazards:

No additional information available.

2.3. Label elements:

Hazard pictograms:



Signal word: DANGER

Hazard statements:

H226 - Flammable liquid and vapour.
H303 - May be harmful if swallowed.
H315 - Causes skin irritation.
H317 - May cause an allergic skin reaction.
H304 - May be fatal if swallowed and enters airways.
H400 - Very toxic to aquatic life.
H412 - Harmful to aquatic life with long lasting effects.

Precautionary statements:

Prevention:
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233 - Keep container tightly closed.
P240 - Ground and bond container and receiving equipment.
P241 - Use explosion-proof equipment.
P242 - Use non-sparkling tools.
P243 - Take action to prevent static discharges.
P261 - Avoid breathing fume/mist/vapours/spray.
P264 - Wash hands thoroughly after handling.
P272 - Contaminated work clothing should not be allowed out of the workplace.
P273 - Avoid release to the environment.
P280 - Wear protective gloves.

Response:
P301 + P316 - IF SWALLOWED: Get emergency medical help immediately.
P331 - Do NOT induce vomiting.
P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse affected areas with water.
P362 + P364 - Take off contaminated clothing and wash it before reuse.
P333 + P317 - If skin irritation or rash occurs: Get medical help.
P370 + P378 - In case of fire: Use Alcohol-resistant foam, water spray , dry chemical powder, or carbon dioxide (CO_2) to extinguish.
P391 - Collect spillage.

Storage:
P403 + P235 - Store in a well-ventilated place. Keep cool.
P405 - Store locked up.

Disposal:
P501 - Dispose of contents/container in accordance with local regulations.

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Section 3. Composition/Information on Ingredients

3.1. Substance / Mixture: Substance
Common chemical name: D'Limonene FG
Synonyms: d-Limonene; Natural orange terpene.
CAS number: 5989-27-5

3.2. Components:

Substance name	CAS number	Concentration
d-Limonene	7681-52-9	≥ 94,0%
Myrcene	123-35-3	1,0 - 2,5%

Section 4. First-Aid Measures

4.1. Description of necessary first-aid measures:
If swallowed:
Do not induce vomiting. Rinse victim's mouth thoroughly with plenty of water. Never give anything by mouth to an unconscious person. Get emergency medical help immediately.

If on skin:
Take off immediately all contaminated clothing. Immediately rinse with water for several minutes. If skin irritation or rash occurs, get medical help.

If inhaled:
Remove person to fresh air and keep comfortable for breathing. Get medical help if unwell.

If in eyes:
Immediately rinse with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists, get medical help.

4.2. Indication of immediate medical attention and special treatment needed, if necessary:
Avoid contact with the product when assisting the victim. If necessary, symptomatic treatment should primarily include supportive measures such as correction of hydroelectrolytic and metabolic disturbances, as well as respiratory assistance. In case of skin contact, do not rub the affected area.

Section 5. Fire-Fighting Measures

5.1. Extinguishing media:
Appropriate:
Alcohol-resistant foam, water mist, dry chemicals and carbon dioxide (CO_2).

Inappropriate:
Solid water stream.

5.2. Specific hazards arising from the chemical:
Flammable liquid. Agitation may cause build-up of static charge. Vapours can ignite/explode if ignition sources are present. Do not breathe fumes in case of fire and/or explosion. Vapours may form an explosive mixture with air. Prolonged exposure to fire may cause container rupture and/or explosion. In case of fire, toxic incineration products may be released such as carbon monoxide and carbon dioxide.

5.3. Special protective actions for fire-fighters:
Use a self-contained breathing apparatus (SCBA) and full-body protective clothing. Keep containers cool with water spray. Do not allow run-off of contaminated fire extinguishing material to enter drains or surface and ground water.

Section 6. Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures:
For non-emergency personnel:
Immediately isolate from ignition sources. Do not smoke. Keep unauthorized persons away from the area. Stop the leak if it can be done without risk. Do not touch damaged containers or the material without appropriate protective clothing. Avoid breathing fume/mist/vapors/spray. Avoid eye and skin contact. Use personal protective equipment as described in Section 8.

For emergency responders:
Wear appropriate personal protective equipment, including safety glasses with side protection and face protection, nitrile safety gloves, PVC apron, appropriate protective clothing, and safety footwear. The materials used must be impermeable. In case of a leak with significant exposure, the use of a respiratory protection mask (full-face or half-face) with an organic vapor filter, a full-face mask with an air supply line, or a self-contained breathing apparatus is recommended.

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6.2. Environmental precautions:

Prevent product from entering drains, soil and waterways. Prevent further leakage or spillage if safe to do so. Notify the competent authorities if the product has run into drainage systems or watercourse or has contaminated the ground or vegetation.

6.3. Methods and materials for containment and cleaning up:

Use natural spill containment barriers. Collect the spilled product and place it in appropriate containers. Absorb the remaining product with dry sand, earth, vermiculite, or any other inert material. Place the absorbed material in appropriate containers and remove them to a safe location. For final disposal, proceed as per Section 13 of this SDS.

Section 7. Handling and Storage

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7.1. Appropriate technical measures for handling:

Precautions for safe handling:

Handle in a well-ventilated area or with general ventilation/local exhaust system. Avoid aerosol formation and unnecessary exposure. Do not breathe vapours or mists. Vapours are heavier than air and may accumulate in low areas, forming flammable or explosive mixtures. Avoid contact with skin, eyes, and incompatible materials. Use personal protective equipment as indicated in Section 8. People with a history of skin sensitization, asthma, allergies, or chronic/recurrent respiratory diseases should not work in processes involving this product.

Hygiene measures:

Wash hands and face thoroughly after handling and before eating, drinking, smoking, or using the restroom. Contaminated clothing should be changed and washed before reuse. Remove contaminated clothing and protective equipment before entering eating areas.

7.2. Conditions for safe storage, including any incompatibilities:

Information about protection against explosion and fire:

Keep away from heat, sparks, open flames, and hot surfaces. No smoking. Keep container tightly closed. Avoid accumulation of static charges. Use explosion-proof electrical, ventilation, and lighting equipment.

Appropriate conditions:

Store in tightly closed containers in cold, dry and well ventilated areas. Do not expose to sunlight. Ensure that the storage location has adequate moisture, pressure and temperature. Keep away from incompatible materials, as described in Section 10.

Section 8. Exposure Controls/Personal Protection

8.1. Control parameters:

Ingredients with workplace control parameters:

Not established.

Biological exposure indices:

Not established.

Other limits and values:

Not established.

8.2. Appropriate engineering controls:

Promote mechanical ventilation and direct exhaust system to the outside. These measures help reduce exposure to the product.

8.3. Individual protection measures, such as personal protective equipment (PPE):

Eye/face protection:
Safety glasses with side protection.

Skin protection:
Nitrile safety gloves, PVC apron, appropriate protective clothing, and safety footwear.

Respiratory protection:
In case of exposure to high concentrations of the vapors of the product use a respiratory protection mask (full-face or half-face) with an organic vapor filter.

Thermal hazards:
Not required.

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Section 9. Physical and Chemical Properties

9.1. Basic physical and chemical properties:

Physical state:	Liquid
Color:	Clear, colourless to slightly yellow
Odor:	Fresh, characteristic of orange
pH:	Not available
Particle characteristics	Not applicable
Melting point/freezing point:	Not available
Boiling point or initial boiling point and boiling range:	Not available
Flash point:	45 °C
Flammability:	Not available
Lower and upper explosion limit/ flammability limit:	Not available
Vapor pressure:	Not available
Relative vapor density:	Not available
Density:	0.837 - 0.847 g/cm³ (20 °C)
Solubility:	Not available
Partition coefficient n-octanol/water (log value):	log K_{ow}: 4.38 (37 °C)
Auto-ignition temperature:	Not available
Decomposition temperature:	Not available
Kinematic viscosity:	Not available

9.2. Other information:
Not available.

Section 10. Stability and Reactivity

10.1. Reactivity:
No hazardous reactivity is expected.

10.2. Chemical stability:
Stable under normal conditions of use and storage.

10.3. Possibility of hazardous reactions:
No dangerous reactions under normal handling conditions. Vapours may form explosive mixtures with air.

10.4. Conditions to avoid:
The product is stable and no degradation occurs under normal use. Protect against high temperatures, heat, flames, sparks, and contact with incompatible materials.

10.5. Incompatible materials:
Strong oxidizing agents.

10.6. Hazardous decomposition products:
Not developed under normal uses. Dangerous outcomes such as carbon monoxide and carbon dioxide are formed at high temperature and in fire.

Section 11. Toxicological Information

11.1. Acute toxicity:

Acute oral toxicity:
Acute toxicity estimate (ATE): 4,469 mg/kg.

Acute inhalation toxicity:
Based on available data the classification criteria are not met.

Acute dermal toxicity:
Acute toxicity estimate (ATE): > 5,000 mg/kg.

11.2. Skin corrosion/irritation:
Causes skin irritation.

11.3. Serious eye damage/irritation:
Vapours may irritate the eyes.

11.4. Respiratory or skin sensitization:
May cause allergic skin reactions.

11.5. Germ cell mutagenicity:
Based on available data the classification criteria are not met.

11.6. Carcinogenicity:
Based on available data the classification criteria are not met.

11.7. Reproductive toxicity:
Based on available data the classification criteria are not met.

11.8. Toxicity for specific target organ – single exposure:
Based on available data the classification criteria are not met.

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11.9. Toxicity for specific target organ – repeated exposure:
Based on available data the classification criteria are not met.

11.10. Aspiration hazard:
May be fatal if swallowed and enters airways.

11.11. Additional information:
Solvents may defat the skin.

Section 12. Ecological Information

12.1. Toxicity:

Acute toxicity to fish:
LC_{50} - 96 h: 0.72 mg/L - *Pimephales promelas*
Endpoint: mortality.
Flow-through test.
Analytical monitoring: yes.
OECD Test Guideline 203

Acute toxicity to daphnia and other aquatic invertebrates:
EC_{50} - 48 h: 0.307 mg/L - *Daphnia pulex*
Endpoint: immobilization.
Semi-static test.
Analytical monitoring: yes.
OECD Test Guideline 202

Acute toxicity to algae:
ErC_{50} - 72 h: 0.32 mg/L - *Raphidocelis subcapitata*
Static test.
Analytical monitoring: yes.
OECD Test Guideline 201

Acute toxicity to microorganisms:
EC_{50}: 3.94 mg/L - Activated sludge treatments
OECD Test Guideline 209.

12.2. Persistence and degradability:
The product is readily biodegradable.
Test substance: d-Limonene
Type: Aerobic
Concentration: 10 mg/L
Result: 71.4% degradation in 28 days — readily biodegradable
Method: OECD Test Guideline 301 B

12.3. Bioaccumulative potential:
The product has potential for bioaccumulation.
Test substance: d-Limonene
log K_{ow}: 4.38 (37 °C)
pH: 7.2
Method: OECD Test Guideline 117
Remarks: Slightly soluble in water

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12.4. Mobility in soil:

The product has low mobility in soil. This conclusion is based on physicochemical properties, such as high log K_{ow} (4.38) and low water solubility, which indicate a tendency for strong adsorption to organic matter and low dispersion in the aqueous phase.

12.5. Other adverse effects:

No additional information available.

Section 13. Disposal Considerations

13.1. Disposal methos:

Product:

The preferred options for disposal include reuse, recycling, co-processing, finding a use for a byproduct, incineration or other thermal destruction process at licensed facilities. All procedures must follow specific operation standards in order to reduce health, safety and environmental risks. Perform co-processing, incineration or other thermal destruction process at facilities capable of minimizing or reducing air pollution emissions. The disposal must comply with federal, state, and local laws and regulations in accordance with the environmental agencies.

Waste from residues:

Any unused product should be put in labelled containers for waste collection and submitted for disposal. All procedures must follow specific operation standards in order to reduce health, safety and environmental risks. Perform co-processing, incineration or other thermal destruction process at facilities capable of minimizing or reducing air pollution emissions. The disposal must comply with federal, state, and local laws and regulations in accordance with the environmental agencies.

Contaminated packaging:

Do not cut or pierce the packaging, nor do hot work near them. Do not remove labels until the product has been fully removed and the packaging cleaned. All procedures must follow specific operation standards in order to reduce health, safety and environmental risks. Perform co-processing, incineration or other thermal destruction process at facilities capable of minimizing or reducing air pollution emissions. The disposal must comply with federal, state, and local laws and regulations in accordance with the environmental agencies.

Section 14. Transport Information

14.1. Regulations

Land transport:

Resolução nº 5998 de 3 de Novembro de 2022 da Agência Nacional de Transportes Terrestres (ANTT), *Atualiza o Regulamento para o Transporte Rodoviário de Produtos Perigosos, aprova suas Instruções Complementares, e dá outras providências*.

UN number:	1197
UN proper shipping name	EXTRATOS, AROMATIZANTES, LÍQUIDOS (d-Limoneno)
Hazard class:	3
Subsidiary hazard class:	N.A.
Hazard identification number:	30
Packing group:	III

Maritime Transport:

IMO - *International Maritime Organization*

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IMGD - *International Maritime Dangerous Goods Code*
DPC - Diretoria de Portos e Costas (transport in brazilian waters)
Normas de Autoridade Marítima (NORMAM)
NORMAM 201/DPC: Embarcações Empregadas na Navegação em Mar Aberto
NORMAM 202/DPC: Embarcações Empregadas na Navegação Interior
NORMAM 321/DPC: Homologação de Material e Certificação de Laboratórios e Sistemas de Embarque
ANTAQ - Agência Nacional de Transportes Aquaviários

UN number:	1197
UN proper shipping name	EXTRACTS, FLAVOURING, LIQUID (d-Limonene)
Hazard class:	3
Subsidiary hazard class:	N.A.
Packing group:	III
EmS:	F-E, S-D
Marine pollutant:	Yes

Air transport:
ICAO - *International Civil Aviation Organization* - Techinical Instructions (TI) Doc 9284.
IATA - *International Air Transport Association - Dangerous Goods Regulation* (DGR).
ANAC - Agência Nacional de Aviação Civil - Resolução n° 129 de 8 de dezembro de 2009.
RBAC Nº 175 - (Regulamento Brasileiro da Aviação Civil) - Transporte de Artigos Perigosos em Aeronaves Civis.

UN number:	1197
UN proper shipping name	EXTRACTS, FLAVOURING, LIQUID (d-Limonene)
Hazard class:	3
Subsidiary hazard class:	N.A.
Packing group:	III
Environmentally hazardous:	Yes

Section 15. Regulatory Information

15.1. Specific regulation for the product:

Decreto Federal nº 10.088, de 5 de novembro de 2019 – Anexo LX.
Norma ABNT-NBR 14725.
Lei nº 12.305, de 02 de agosto de 2010 (Política Nacional de Resíduos Sólidos).
Decreto nº 10.936, de 12 de janeiro de 2022.
Portaria MTB nº 3.214, de 08 de junho de 1978 - Norma Regulamentadora nº 26.

Section 16. Other Information

In locations where chemical products are handled, monitoring of worker exposure should be conducted in accordance with the applicable Risk Management Program and international occupational safety guidelines. Employees who handle chemical products in general should undergo biological monitoring according to the Occupational Health and Safety Program or other applicable international standards.

The information and recommendations in this document were researched and compiled from reliable sources, the Safety Data Sheets (SDS) provided by suppliers, and applicable regulations for the product, in accordance with ABNT NBR 14725.

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The data in this document refers to a specific product and may not be valid when this product is used in combination with others. DISTRIBUIDORA INDUSTRIAL PARANAENSE LTDA, based on the facts presented in this document, does not intend to establish absolute and definitive information about the product and its risks, but rather to provide guidance with information to protect its employees and clients, ensuring individual protection, continuity of operations, and environmental preservation.

16.1. Abbreviations and acronyms

ABNT-NBR	Associação Brasileira de Normas Técnicas - Norma Técnica Brasileira
CAS	Chemical Abstracts Service
DPC	Diretoria de Portos e Costas
EC_{50}	Half maximal Effective Concentration
ErC_{50}	Half maximal Effective Concentration on growth rate
EmS	Emergency Response Procedures for Ships Carrying Dangerous Goods
IATA–DGR	International Air Transport Association – Dangerous Goods Regulation
IMDG	International Maritime Dangerous Goods Code
IMO	International Maritime Organization
K_{ow}	Octanol-Water Partition Coefficient
LC_{50}	Lethal Concentration to 50% of a population of organisms or cells
N.A.	Not applicable
OECD	Organisation for Economic Co-operation and Development
RBAC	Regulamento Brasileiro da Aviação Civil
UN	United Nations

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