SAFETY DATA SHEET

1. IDENTIFICATION OF SUBSTANCE/PREPARATION & OF THE COMPANY

DISTRIBUTED BY: R.E. CARROLL, INC.
1570 N. OLDEN AVENUE EXT.
EWING, NJ 08638-3204 USA
T: 609-695-6211/800-257-9365
F: 609-695-0102 Orders@RECarroll.com

1.1.	*Identification of product*	**Citrus Terpenes**
1.2.	*Other means of identification (Trade name)*	**Citrus Terpenes**
1.3.	*Relevant identified uses of the material and restrictions on use*	Not for personal use – for manufacturing use only
1.4.	*Supplier details*	Interstate Commodities Corp. 117 N. Main Street Suite 2B Greenville, SC 29601
1.5.	*Emergency telephone number& contact*	Within U.S.: 800-255-3924 (ChemTel) Outside U.S.: +01-813-248-0585 (ChemTel)

2. HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

H315	Causes skin irritation
H317	May cause an allergic skin reaction
H304	May be fatal if swallowed and enters airways
H226	Flammable liquid and vapour
H410	Very toxic to aquatic life with long lasting effects

2.2. Label elements, signal words & precautionary statements

DANGER

P305 + P351 +	P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do so. Continue rinsing.
	P280	Wear protective gloves
	P210	Keep away from heat/sparks/open flames/hot surfaces – No smoking
	P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
	P262	Do not get in eyes, on skin, or on clothing
	P273	Avoid release to the environment
P301 + P310 +	P331	IF SWALLOWED: Immediately call Poison Control or doctor/physician. Do not induce vomiting.

2.2.1. Other hazards — May cause dry skin

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1.	*General Information*	Flavoring Compound
3.2.	*Chemical Identity*	Not applicable (Mixture)
3.3.	*Common name(s) of the substance*	Citrus Terpenes

3.4. CAS number & other identifiers Not applicable (Mixture)

3.5. Information on Ingredients

CAS Number	Concentration	IUPAC Name
5989-27-5	**70 - 100 %**	(R)-4-Isopropenyl-1-methyl cyclohexene
127-91-3	**0 – 12.5 %**	6,6-Dimethyl-2-methylene bicyclo[3.1.1]heptane
99-85-4	**7 – 11 %**	1-isopropyl-4-methyl-cyclohexa-1,4-diene
123-35-3	**0 - 2 %**	7-Methyl-3-methylene-1,6-octadiene

4. FIRST AID MEASURES

4.1. Description of first aid measures

4.1.1. Inhalation Not thought to be harmful by inhalation however if overcome by exposure, evacuate to fresh air. If symptoms persist, seek medical attention.

4.1.2. Skin contact Skin contact should be avoided. On contact wash affected area thoroughly with mild soap and warm water. Remove affected clothing. Seek medical attention if irritation persists.

4.1.3. Eye contact Not thought to cause damage to eyes. Exercise standard splash controls for example remove any contact lenses at once and flush eyes well with large quantities of water for at least 15 minutes.

4.1.4. Accidental ingestion Consult a physician. CAUTION--NEVER INDUCE VOMITING IF A PERSON IS UNCONSCIOUS.

4.1.5. Notes for the doctor/first aid responder Wear gloves where contact with material is possible. Remove affected clothing from casualty as soon as possible and irrigate skin.

4.2. Most important symptoms and effects, both acute and delayed Acute: skin irritation and redness; Delayed: none known

4.3. Indication of any immediate medical attention and special treatment needed None known

5. FIRE-FIGHTING MEASURES

5.1. Extinguishing media Foam or dry agent. Carbon dioxide or dry powder can be effective particularly in the case of small fires.

5.2. Special exposure hazards Substance can be violently or even explosively reactive, including combustion.

5.3. Advice for fire-fighters Breathing apparatus and fire kit are required. Fire waters must be contained. Prevent by any means available spillage from entering drains or water-course.

5.4. Additional information Cool endangered containers.

6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment & emergency procedures NO SMOKING. Eliminate other ignition sources.

6.1.1. For non-emergency personnel

- ***Protective equipment*** Wear adequate (PPE) personal protective equipment: see Section 8. Avoid skin contamination.
- ***Emergency procedures*** Follow safety measures in Section 7 & Section 8. Leaking containers should be moved to a bunded area away from ignition sources. Clean up spillage with, for example, incombustible adsorbent material such as sand, diatomite. Dispose of contaminated material as per Section 13.

6.1.2. For emergency personnel Apply the same recommendations as per Section 6.1.1

6.2. Environmental precautions Do not discharge into drains, air, soil or into the aquatic environment.

6.3. Methods and material for containment and cleaning up

Wipe up small amounts with adsorbent material such as cloth. Larger spillages on land may be cleaned up with incombustible adsorbent material such as sand, diatomite. Larger spillages on water may require removal by vacuum tanker or buoyant adsorbent materials.

6.4. Reference to other sections

Refer to Section 6.1, Section 7, 8 and Section 13

7. HANDLING AND STORAGE

7.1. Precautions for safe handling

7.1.1. Protective measures:

Refer to Section 8. Avoid skin contact. Protect against physical damage to containers. Keep away from heat or sources of ignition and oxidizing materials. Recommend to store in steel containers in a bunded area. Wash hands after use. Do not eat drink or smoke in work areas.

- ***Measures to prevent fire:***

No smoking. Avoid all sources of ignition. Avoid exposure to high temperatures during processing. Prevent against electrostatic discharges.

- ***Measures to prevent aerosol and dust generation:***

Maintain adequate local ventilation where product is handled. Under normal handling conditions dust and aerosols will not be generated.

- ***Measures to protect the environment:***

Operational controls are required to eliminate release to the environment.

7.2. Conditions for safe storage, including any incompatibilities

Keep containers tightly sealed. Store in cool, dry conditions. Containers which have been opened must be carefully resealed and kept upright to minimise leakage. Store in bunded areas away from sources of ignition.

7.3. Specific end use(s)

For use in the beverage industry. No exposure scenarios or chemical safety reports are required for this material use.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

As with all semi-finished materials, prudent industrial practices should be employed to minimize contact with eyes, skin and mucous membranes.

8.1. Control Parameters

When this mixture is used as intended there are no applicable occupational exposure limit values and/or biological limit values. Monitoring for skin sensitization is advised.

8.2. Exposure controls

8.2.1. Appropriate engineering controls

Equipment should be suitable for use with flammable material. Ensure no spillage to waterways.

8.2.2. Personal protection equipment:

8.2.2.1. Eye and face protection:

Safety glasses and/or face shield depending on operation. Use equipment for eye protection tested and approved under appropriate national/international standards, for example EN166S

8.2.2.2. Skin protection:

- ***Hand protection:***

The suitability of a particular protective glove for a specific workplace should be discussed with the manufacturer. Inspect gloves prior to use and replace when heavily soiled as soon as possible. Certain operations will require the use of gauntlets instead of gloves. Gloves should conform to EN1149. Nitrile gloves with 0.2 mm thickness have not shown a breakthrough time < 45 minutes.

- ***Other protection***

Protective work clothing. Skin contact to be avoided, for example the use of splash aprons, anti static safety footwear for certain operations.

8.2.2.3. Respiratory protection:

No respiratory protection is required where ventilation is in use.

8.2.2.4. Thermal hazards:

Antistatic PPE is recommended.

8.2.3. Environmental exposure controls:

Ensure no spillage to waterways. Refer to Section 6.
No chemical safety report is required for this material use.

9. PHYSICAL & CHEMICAL PROPERTIES

a)	***Appearance***	Clear to very slightly yellow liquid
b)	***Odour***	Mild citrus aroma
c)	***Odour threshold***	Not Known
d)	***pH***	Not applicable – this is not a water-based material
e)	***Melting point / freezing point***	< -50 °C
f)	***Initial boiling point and boiling range***	160 °C
g)	***Flash point***	48 °C (119°F) ASTM D3278 Setaflash Closed Tester
h)	***Evaporation rate***	Not known
i)	***Flammability (solid, gas)***	Will support combustion.
j)	***Upper/lower flammability or explosive limits***	0.7 % vol *(lower)*; 6.1 % vol *(upper)* ……*based on CAS 5989-27-5*
k)	***Vapour pressure***	200 Pa at 25 °C ……*based on CAS 5989-27-5*
l)	***Vapour density***	Not Known
m)	***Relative density***	0.84 at 25°C
n)	***Solubility(ies)***	Water: slightly soluble (0.1-100 mg/l) ……*based on CAS 5989-27-5*
o)	***Partition coefficient: n-octanol/water***	4.38 at 37°C ……*based on CAS 5989-27-5*
p)	***Auto-ignition temperature***	245 °C ……*based on CAS 5989-27-5*
q)	***Decomposition temperature***	Not known
r)	***Viscosity***	Dynamic: 0.8462 mPa*s at 25°C ……*based on CAS 5989-27-5*
s)	***Explosive properties***	Not known
t)	***Oxidising properties.***	This material is not an oxidising agent

10. STABILITY & REACTIVITY DATA

10.1.	***Reactivity***	This material will react with oxidising agents.
10.2.	***Chemical stability***	The material is stable at anticipated storage and handling conditions of temperature and pressure (25°C & atmospheric pressure). Combustible.
10.3.	***Possibility of hazardous reactions***	Formation of flammable gas mixture with air possible.
10.4.	***Conditions to avoid***	High temperatures, static discharge, flames and sparks.
10.5.	***Incompatible materials***	Oxidising agents and other incompatible materials

10.6.	***Hazardous decomposition products***	When heated to decomposition, this material will produce CO and CO_2.

11. TOXICOLOGICAL INFORMATION

Refer to Section 4 for possible routes of exposure, symptoms and effects.

Citrus Terpenes

No Data is available on the product itself. Data on individual components of the mixture is given below:

CAS # 5989-27-5

11.1. Acute toxicity

Oral	LD 50 mouse >5000 mg/kg
Inhalation	No data available
Dermal	LD 50 rabbit 2000 mg/kg

11.2.	***Skin Corrosion/Irritation***	Under the test conditions, this substance is classified as 'R38 Irritating to skin' according to the criteria of Annex VI to the Directive 67/548/EEC but it is not classified according to CLP Regulation (EC) N° (1272-2008).
11.3.	***Serious eye damage/ irritation***	Under the test conditions, this substance is not classified as irritating to the eye according to the criteria of Annex VI to the Directive 67/548/EEC and CLP Regulation (EC) N° (1272-2008).
11.4.	***Sensitization***	Under the test conditions, this substance is classified as 'R43 May cause sensitisation by skin contact', according to the criteria of Annex VI to the Directive 67/548/EEC and 'Category 1' according to the CLP Regulation (EC) N° (1272-2008).
11.5.	***Germ cell mutagenicity***	Under the test conditions, this substance is not considered as mutagenic in Comet assay on isolated kidney cells and does not need to be classified according to the criteria of the Annex VI to the Directive 67/548/EEC and CLP Regulation (EC) N° (1272-2008).
11.6.	***Carcinogenicity***	Under the test conditions, there was no evidence of carcinogenic activity of this substance for male and female B6C3F1 mice
11.7.	***Reproductive toxicity***	No data available
11.8.	***STOT – single exposure***	No data available
11.9.	***STOT – repeated exposure***	No data available
11.10.	***Aspiration hazard***	No data available

CAS # 127-91-3

11.1. Acute toxicity

Oral	LD 50 rat >2000 mg/kg
Inhalation	No data available
Dermal	LD 50 rabbit 2000 mg/kg

11.2.	***Skin Corrosion/Irritation***	This substance is classified as irritating to skin, R38, according to the criteria of Annex VI to the Directive 67/548/EEC and category 2 in CLP Regulation (EC) N° (1272-2008).
11.3.	***Serious eye damage/ irritation***	This substance is not classified as irritating to eyes according to the criteria of Annex VI to the Directive 67/548/EEC and CLP Regulation (EC) N° (1272-2008).
11.4.	***Sensitization***	This substance is classified as skin sensitizer category 1 according to the CLP regulation No. 1272/2008 and as skin sensitizer "Xi, R43: May cause sensitisation by skin contact" according to the Directive 67/548/EEC.
11.5.	***Germ cell mutagenicity***	This substance is not considered as mutagenic according to the criteria of the Annex VI to the Directive 67/548/EEC and CLP Regulation (EC) N° (1272-2008).
11.6.	***Carcinogenicity***	No data available

11.7.	***Reproductive toxicity***	No data available
11.8.	***STOT – single exposure***	No data available
11.9.	***STOT – repeated exposure***	No data available
11.10.	***Aspiration hazard***	This substance is known to cause human aspiration toxicity hazards or has to be regarded as if it causes a human aspiration toxicity hazard.

CAS # 99-85-4

11.1. Acute toxicity

Oral	No data available
Inhalation	May be fatal if swallowed and enters airways
Dermal	No data available

11.2.	***Skin Corrosion/Irritation***	Causes mild skin irritation
11.3.	***Serious eye damage/ irritation***	No data available
11.4.	***Sensitization***	No data available
11.5.	***Germ cell mutagenicity***	No data available
11.6.	***Carcinogenicity***	No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
11.7.	***Reproductive toxicity***	No data available
11.8.	***STOT – single exposure***	No data available
11.9.	***STOT – repeated exposure***	No data available
11.10.	***Aspiration hazard***	This substance is known to cause human aspiration toxicity hazards or has to be regarded as if it causes a human aspiration toxicity hazard.

CAS # 123-35-3

11.1. Acute toxicity

Oral	LD 50 mouse >2000 mg/kg
Inhalation	May be fatal if swallowed and enters airways
Dermal	Under the test conditions, the acute dermal LD50 of this substance was greater than 5 g/kg bw therefore it is not classified according to the Annex VI to the Directive 67/548/EEC and the CLP Regulation (EC) N° (1272-2008).

11.2.	***Skin Corrosion/Irritation***	This substance is classified as skin irritant, R38, according to the criteria of Annex VI to the Directive 67/548/EEC and category 2 in CLP Regulation (EC) N° (1272-2008).
11.3.	***Serious eye damage/ irritation***	This substance is classified as 'Irritating to eyes (Category 2)' according to CLP Regulation (EC) N° (1272-2008) but not classified according to the criteria of Annex VI to the Directive 67/548/EEC
11.4.	***Sensitization***	Not sensitizing
11.5.	***Germ cell mutagenicity***	Not mutagenic
11.6.	***Carcinogenicity***	Not carcinogenic
11.7.	***Reproductive toxicity***	NOAEL = 300 mg/kg/bw/day
11.8.	***STOT – single exposure***	No data available
11.9.	***STOT – repeated exposure***	No data available
11.10.	***Aspiration hazard***	The substance is known to cause human aspiration toxicity hazards or has to be regarded as if it causes a human aspiration toxicity hazard.

12. ECOLOGICAL INFORMATION

12.1.	***Toxicity***	
	Short Term toxicity to fish	LC50 - Pimephales promelas (fathead minnow) - 0.720 mg/l - 96.0 h. *…based on CAS 5989-27-5*
	Short Term toxicity to aquatic invertebrates	EC50 - Daphnia magna (Water flea) – 0.36 mg/test item/l - 48 h. *……based on CAS 5989-27-5*
	Long Term toxicity to aquatic invertebrates	EC50 = 0.115 mg/l based on computer modelling studies. *……based on CAS 5989-27-5*
12.2.	***Persistence and degradability***	No data available
12.3.	***Bioaccumulative potential***	No data available
12.4.	***Mobility in soil***	No data available
12.5.	***Results of PBT and vPvB assessment***	No data available
12.6.	***Other adverse effects***	Very toxic to aquatic life. *……based on CAS 5989-27-5*

13. DISPOSAL CONSIDERATIONS

Residual quantities of this product should be handled in accordance with instructions given under Sections 6, 7 and 8. Dispose of waste in accordance with National and Local laws. Do not dispose of concentrated material down drains

This material in its concentrated form is an environmental hazard and is flammable in nature. It and any materials in direct contact should therefore be disposed of as hazardous waste. Disposal of unwashed containers and more dilute concentrations should be subject to risk assessment to determine if the hazardous properties still exist.

Ensure no spillage to waterways

14. TRANSPORTATION INFORMATION

14.1. UN Number	2319
14.2. UN proper shipping name	Terpene hydrocarbons, n.o.s. (Dipentene)
14.3. Transport hazard class(es)	3
14.4. Packaging Group	*III*
14.5. Environmental hazards	This material contains components which are known marine pollutants
14.6. Special precautions for user	Avoid accidental discharge to drain and waterways

15. REGULATORY INFORMATION

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture	U.S.: Comprehensive Environmental Response and Liability Act of 1980 (CERCLA): The reportable quantity (RQ) for this material is 100 lbs. This material is subject to European Directive 96/82/EC (i.e. Seveso Regulations)
15.2. Chemical Safety Assessment	A chemical safety assessment is not required for this material use

16. OTHER INFORMATION

While The Company believes that the data contained herein are factual, the data are not to be taken as a warranty or representation for which The Company assumes legal responsibility. They are offered solely for consideration, investigation and verification. Any of these data and information must be determined by the user to be in accordance with applicable National and Local laws and regulations. Information contained in this document is proprietary. Disclosure to third parties without prior written consent except where required by laws and regulations is strictly prohibited