



SAFETY DATA SHEET

INTERNATIONAL FLAVORS & FRAGRANCES

Product DELTA DAMASCONE

Print Date 08/11/2015

Page 1 (12)

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : DELTA DAMASCONE
IFF Code : 00043930
Cust. Material : 00043930
MSDS Number : R00000218958
Product Use Description : Fragrance Ingredient

Company : International Flavors & Fragrances
(Zhejiang) Co., Ltd.
Hangzhou Economic & Technological
Development AreaNo. 321, 20 Ave310018 Zhejiang ZHEJIANG
Telephone : +8657128928321
Telefax : +8657128928306
Emergency telephone number :

SECTION 2 HAZARDS IDENTIFICATION

GHS-Classification

Acute toxicity, Category 4, Oral
Skin irritation, Category 2
Skin sensitisation, Sub-category 1A

GHS-Labeling

Symbol(s)



Signal word

: Warning

Hazard statements

: H302: Harmful if swallowed.
H315: Causes skin irritation.
H317: May cause an allergic skin reaction.

Version : 2

Revision Date : 05/11/2015

International Flavors & Fragrances
(Zhejiang) Co., Ltd.
Hangzhou Economic & Technological
Development AreaNo. 321, 20 Ave310018 Zhejiang
ZHEJIANG

Telephone: +8657128928321

International Flavors & Fragrances
(Zhejiang) Co., Ltd.
Hangzhou Economic & Technological
Development AreaNo. 321, 20 Ave310018 Zhejiang
ZHEJIANG

Telefax: +8657128928306



SAFETY DATA SHEET

INTERNATIONAL FLAVORS & FRAGRANCES

Product DELTA DAMASCONE

Print Date 08/11/2015

Page 2 (12)

Precautionary statements : P301 + P312 + P330: IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell. Rinse mouth.
P302 + P352: IF ON SKIN: Wash with plenty of soap and water.
P270: Do not eat, drink or smoke when using this product.
P280: Wear protective gloves.

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.

No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous components

Component	CAS-No.
2-Buten-1-one, 1-(2,6,6-trimethyl-3-cyclohexen-1-yl)-	57378-68-4, 71048-82-3
Phenol, 2,6-bis(1,1-dimethylethyl)-4-methyl-, 2,6-Bis(1,1-dimethylethyl)-4-methylphenol, 2,6-Di-tert-butyl-4-methylphenol	128-37-0

SECTION 4. FIRST AID MEASURES

Version : 2
Revision Date : 05/11/2015

International Flavors & Fragrances
(Zhejiang) Co., Ltd.
Hangzhou Economic & Technological
Development AreaNo. 321, 20 Ave310018 Zhejiang
ZHEJIANG

Telephone: +8657128928321

International Flavors & Fragrances
(Zhejiang) Co., Ltd.
Hangzhou Economic & Technological
Development AreaNo. 321, 20 Ave310018 Zhejiang
ZHEJIANG

Telefax: +8657128928306



SAFETY DATA SHEET

INTERNATIONAL FLAVORS & FRAGRANCES

Product DELTA DAMASCONE

Print Date 08/11/2015

Page 3 (12)

First aid procedures

- Inhalation : Remove from exposure site to fresh air and keep at rest. Obtain medical advice.
- Skin contact : Remove contaminated clothes. Wash thoroughly with water (and soap). Contact physician if symptoms persist.
- Eye contact : Flush immediately with water for at least 15 minutes. Contact physician if symptoms persist.
- Ingestion : Rinse mouth with water and obtain medical advice.

SECTION 5. FIREFIGHTING MEASURES

Flammable properties

- Flash point : 217 °F (103 °C)
at 1,013.00 hPa (1,013 hPa)

Fire fighting

- Suitable extinguishing media : Use water spray, dry chemical, carbon dioxide or appropriate foam.

Protective equipment and precautions for firefighters

- Special protective equipment for firefighters : Wear NIOSH approved self-contained breathing apparatus and full protective clothing when fighting fires involving chemicals. Use water spray to cool containers exposed to fire.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Version : 2
Revision Date : 05/11/2015

International Flavors & Fragrances
(Zhejiang) Co., Ltd.
Hangzhou Economic & Technological
Development Area No. 321, 20 Ave 310018 Zhejiang
ZHEJIANG

Telephone: +8657128928321

International Flavors & Fragrances
(Zhejiang) Co., Ltd.
Hangzhou Economic & Technological
Development Area No. 321, 20 Ave 310018 Zhejiang
ZHEJIANG

Telefax: +8657128928306



SAFETY DATA SHEET

INTERNATIONAL FLAVORS & FRAGRANCES

Product DELTA DAMASCONE

Print Date 08/11/2015

Page 4 (12)

- Personal precautions : Avoid inhalation and contact with skin and eyes. A self-contained breathing apparatus is recommended in case of a major spill.
- Environmental precautions : Keep away from drains, surface- and groundwater and soil.
- Methods for containment /
Methods for cleaning up : Clean up spillage promptly. Remove ignition sources. Provide adequate ventilation. Avoid excessive inhalation of vapours. Gross spillages should be contained by use of sand or inert powder and disposed of according to the local regulations.

SECTION 7. HANDLING AND STORAGE

- Handling : Avoid excessive inhalation of concentrated vapors. Follow good manufacturing practices for housekeeping and personal hygiene. Wash any exposed skin immediately after any chemical contact, before breaks and meals, and at the end of each work period. Contaminated clothing and shoes should be thoroughly cleaned before re-use.
- If appropriate, procedures used during the handling of this material should also be used when cleaning equipment or removing residual chemicals from tanks or other containers, especially when steam or hot water is used, as this may increase vapor concentrations in the workplace air. Where chemicals are openly handled, access should be restricted to properly trained employees.
Keep all heated processes at the lowest necessary temperature in order to minimize emissions of volatile chemicals into the air.
- Advice on protection against fire and explosion : Keep away from ignition sources and naked flame.
- Requirements for storage areas and containers : Store in a cool, dry, ventilated area away from heat sources. Keep containers upright and tightly closed when not in use.

Version : 2
Revision Date : 05/11/2015

International Flavors & Fragrances
(Zhejiang) Co., Ltd.
Hangzhou Economic & Technological
Development Area No. 321, 20 Ave 310018 Zhejiang
ZHEJIANG

Telephone: +8657128928321

International Flavors & Fragrances
(Zhejiang) Co., Ltd.
Hangzhou Economic & Technological
Development Area No. 321, 20 Ave 310018 Zhejiang
ZHEJIANG

Telefax: +8657128928306



SAFETY DATA SHEET

INTERNATIONAL FLAVORS & FRAGRANCES

Product DELTA DAMASCONÉ

Print Date 08/11/2015

Page 5 (12)

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Engineering measures

Engineering measures : Where feasible, isolate mixing rooms and other areas where this material is used or openly handled. Maintain these areas under negative air pressure relative to the rest of the plant. Where feasible, use closed systems to transfer and process this material

Personal protective equipment

Eye protection : Use tight-fitting goggles, face shield or safety glasses with side shields if eye contact might occur.

Hand protection : Avoid skin contact. Use chemically resistant gloves.

Respiratory protection : Use local exhaust ventilation around open tanks and other open sources of potential exposures in order to avoid excessive inhalation, including places where this material is openly weighed or measured. In addition, use general dilution ventilation of the work area to eliminate or reduce possible worker exposures. No respiratory protection is required during normal operations in a workplace where engineering controls such as adequate ventilation, etc. are sufficient.

If engineering controls and safe work practices are not sufficient, an approved, properly fitted respirator with organic vapor cartridges or canisters and particulate filters should be used:

- a) while engineering controls and appropriate safe work practices and/or procedures are being implemented; or
- b) during short term maintenance procedures when engineering controls are not in normal operation or are not sufficient; or

Version : 2
Revision Date : 05/11/2015

International Flavors & Fragrances
(Zhejiang) Co., Ltd.
Hangzhou Economic & Technological
Development Area No. 321, 20 Ave 310018 Zhejiang
ZHEJIANG

Telephone: +8657128928321

International Flavors & Fragrances
(Zhejiang) Co., Ltd.
Hangzhou Economic & Technological
Development Area No. 321, 20 Ave 310018 Zhejiang
ZHEJIANG

Telefax: +8657128928306



SAFETY DATA SHEET

INTERNATIONAL FLAVORS & FRAGRANCES

Product DELTA DAMASCONE

Print Date 08/11/2015

Page 6 (12)

c)if normal operational workplace vapor concentration in the air is increased due to heat ;
d)during emergencies; or
e)if engineering controls and operational practices are not sufficient to reduce airborne concentrations below an established occupational exposure limit.

Hygiene measures

: To the extent deemed appropriate, implement pre-placement and regularly scheduled ascertainment of symptoms and spirometry testing of lung function for workers who are regularly exposed to this material.
To the extent deemed appropriate, use an experienced air sampling expert to identify and measure volatile chemicals that could be present in the workplace air to determine potential exposures and to ensure the continuing effectiveness of engineering controls and operational practices to minimize exposure.

Protective measures

: In December 2003, the National Institute for Occupational Safety and Health ("NIOSH") published an Alert on preventing lung disease in workers who use or make flavorings [NIOSH Publication Number 2004-110].
In August 2004, the United States Flavor and Extract Manufacturers Association (FEMA) issued a report entitled "Respiratory Safety in the Flavor Manufacturing Workplace".
Both of these reports provide recommendations for reducing employee exposure and for medical surveillance in the workplace. The recommendations in these reports are generally applicable to the use of any chemical in the workplace and you are strongly urged to review both of these reports.
The report published by FEMA also contains a list of "high priority" chemicals. If any of these chemicals are present in this product at a concentration $\geq 1.0\%$ due to an intentional addition by IFF, the chemical(s) will be identified in this safety data sheet.

Version : 2
Revision Date : 05/11/2015

International Flavors & Fragrances
(Zhejiang) Co., Ltd.
Hangzhou Economic & Technological
Development Area No. 321, 20 Ave 310018 Zhejiang
ZHEJIANG

Telephone: +8657128928321

International Flavors & Fragrances
(Zhejiang) Co., Ltd.
Hangzhou Economic & Technological
Development Area No. 321, 20 Ave 310018 Zhejiang
ZHEJIANG

Telefax: +8657128928306



SAFETY DATA SHEET

INTERNATIONAL FLAVORS & FRAGRANCES

Product DELTA DAMASCONE

Print Date 08/11/2015

Page 7 (12)

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Physical state : liquid
Colour : colorless to pale yellow
Odour : conforms to standard

Safety data

Flash point : 217 °F (103 °C)
at 1,013 hPa (1,013 hPa)
Auto-ignition temperature : 536 °F (280 °C)
at 1,013.00 hPa (1,013 hPa)
Method: Tested according to Annex V of Directive 67/548/EEC.
Vapour pressure : .02 hPa (0.0272 hPa)
at 73 °F (23 °C)
Method: Purge & Trap
Relative density (20 °C) : 0.928 - 0.933
Method: ISO 279
Water solubility : 0.0772 g/l
at 68 °F (20 °C)
Method: Tested according to Annex V of Directive 67/548/EEC.
Partition coefficient: n-octanol/water : log Pow: 4.200

SECTION 10. STABILITY AND REACTIVITY

Conditions to avoid : Remarks: Direct sources of heat.

Version : 2
Revision Date : 05/11/2015

International Flavors & Fragrances
(Zhejiang) Co., Ltd.
Hangzhou Economic & Technological
Development Area No. 321, 20 Ave 310018 Zhejiang
ZHEJIANG

Telephone: +8657128928321

International Flavors & Fragrances
(Zhejiang) Co., Ltd.
Hangzhou Economic & Technological
Development Area No. 321, 20 Ave 310018 Zhejiang
ZHEJIANG

Telefax: +8657128928306



SAFETY DATA SHEET

INTERNATIONAL FLAVORS & FRAGRANCES

Product DELTA DAMASCONE

Print Date 08/11/2015

Page 8 (12)

Chemical stability : Remarks: Presents no significant reactivity hazard, by itself or in contact with water. Avoid contact with strong acids, alkali or oxidizing agents.

Hazardous decomposition products : Note: Carbon monoxide and unidentified organic compounds may be formed during combustion.

SECTION 11. TOXICOLOGICAL INFORMATION

Acute oral toxicity : Acute toxicity estimate
Dose: 1,401 mg/kg
Method: Calculation method

Acute oral toxicity (Component) : Component: 57378-68-4
LD50 Mouse
Dose: 1,400 mg/kg
Method: OECD Test Guideline 401

Acute dermal toxicity (Component) : Component: 57378-68-4
LD50 Rabbit
Dose: > 5,000 mg/kg
Method: OECD Test Guideline 402

Skin irritation (Component) : Component: 57378-68-4
human
Result: irritating
Method: Tested according to Annex V of Directive 67/548/EEC.
Exposure time: 42 h

Eye irritation(Component) : Component: 57378-68-4
Chicken
Result: No eye irritation
Method: OECD 438

Sensitisation (Component) : Component: 57378-68-4

Version : 2
Revision Date : 05/11/2015

International Flavors & Fragrances
(Zhejiang) Co., Ltd.
Hangzhou Economic & Technological
Development Area No. 321, 20 Ave 310018 Zhejiang
ZHEJIANG

Telephone: +8657128928321

International Flavors & Fragrances
(Zhejiang) Co., Ltd.
Hangzhou Economic & Technological
Development Area No. 321, 20 Ave 310018 Zhejiang
ZHEJIANG

Telefax: +8657128928306



SAFETY DATA SHEET

INTERNATIONAL FLAVORS & FRAGRANCES

Product DELTA DAMASCONE

Print Date 08/11/2015

Page 9 (12)

LLNA Mouse
Result: Causes sensitisation.
Method: OECD 429

Repeated dose : Component: 57378-68-4
toxicity(Component) OralRat
Number of exposures: 1x /day
NOEL: 30 mg/kg
Method: OECD 408

SECTION 12. ECOLOGICAL INFORMATION

Component:

57378-68-4

cis-delta-
Damascone

Toxicity to fish:
semi-static test LC50
Species: *Oryzias latipes* (Orange-red killifish)
Dose: 0.97 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203

Toxicity to algae:
Growth inhibitionEbC50
Species: *Pseudokirchneriella subcapitata* (green algae)
Dose: 2.47 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

Toxicity to algae:
Growth inhibitionErC50
Species: *Pseudokirchneriella subcapitata* (green algae)
Dose: 4.54 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

Toxicity to algae:

Version : 2
Revision Date : 05/11/2015

International Flavors & Fragrances
(Zhejiang) Co., Ltd.
Hangzhou Economic & Technological
Development AreaNo. 321, 20 Ave310018 Zhejiang
ZHEJIANG

Telephone: +8657128928321

International Flavors & Fragrances
(Zhejiang) Co., Ltd.
Hangzhou Economic & Technological
Development AreaNo. 321, 20 Ave310018 Zhejiang
ZHEJIANG

Telefax: +8657128928306



SAFETY DATA SHEET

INTERNATIONAL FLAVORS & FRAGRANCES

Product DELTA DAMASCONE

Print Date 08/11/2015

Page 10 (12)

Growth inhibition NOEC
Species: Pseudokirchneriella subcapitata (green algae)
Dose: 0.883 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

Toxicity to bacteria:
Respiration inhibition EC50
Species:
Dose: 241 mg/l
Exposure time: 3 h
Method: OECD 209

<03EHS L TEXT(CED-H12.00200010)>
<03EHS L TEXT(CED-H11.00000120)>
semi-static test NOEC
Species: Daphnia magna (Water flea)
Concentration: .35 mg/l
Exposure time: 21 d
Method: OECD 211

SECTION 13. DISPOSAL CONSIDERATIONS

Contaminated packaging : Place material into sealed containers and dispose of in accordance with local, state and federal regulations.

SECTION 14. TRANSPORT INFORMATION

DOT Not dangerous goods

IATA UN number : 3082
Description of the goods : ENVIRONMENTALLY HAZARDOUS
SUBSTANCE, LIQUID, N.O.S.
(1-(2,6,6-trimethyl-3-cyclohexen-1-yl)-2-buten-1-

Version : 2
Revision Date : 05/11/2015

International Flavors & Fragrances
(Zhejiang) Co., Ltd.
Hangzhou Economic & Technological
Development Area No. 321, 20 Ave 310018 Zhejiang
ZHEJIANG

Telephone: +8657128928321

International Flavors & Fragrances
(Zhejiang) Co., Ltd.
Hangzhou Economic & Technological
Development Area No. 321, 20 Ave 310018 Zhejiang
ZHEJIANG

Telefax: +8657128928306



SAFETY DATA SHEET

INTERNATIONAL FLAVORS & FRAGRANCES

Product DELTA DAMASCONE

Print Date 08/11/2015

Page 11 (12)

	Class	: 9
	Packing group	: III
	ICAO-Labels	: 9
IMDG	UN number	: 3082
	Description of the goods	: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (1-(2,6,6-trimethyl-3-cyclohexen-1-yl)-2-buten-1-one)
	Class	: 9
	Packing group	: III
	IMDG-Labels	: 9
	EmSNumber 1	: F-A
	EmSNumber 2	: S-F
	Marine pollutant	: yes (1-(2,6,6-trimethyl-3-cyclohexen-1-yl)-2-buten-1-one)

SECTION 15. REGULATORY INFORMATION

SARA 311/312 Hazards : Acute Health Hazard

Reportable Quantity :

HMIS Classification : Health hazard: 2
Flammability: 1
Physical and chemical hazards: 0

SECTION 16. OTHER INFORMATION

Further information

Version : 2
Revision Date : 05/11/2015

International Flavors & Fragrances
(Zhejiang) Co., Ltd.
Hangzhou Economic & Technological
Development AreaNo. 321, 20 Ave310018 Zhejiang
ZHEJIANG

Telephone: +8657128928321

International Flavors & Fragrances
(Zhejiang) Co., Ltd.
Hangzhou Economic & Technological
Development AreaNo. 321, 20 Ave310018 Zhejiang
ZHEJIANG

Telefax: +8657128928306



SAFETY DATA SHEET

INTERNATIONAL FLAVORS & FRAGRANCES

Product DELTA DAMASCONE

Print Date 08/11/2015

Page 12 (12)

The information in this MSDS was obtained from current and reliable sources. However the data is provided without any warrant, expressed or implied, regarding its correctness or accuracy. Since the use, handling, storage and disposal of this product are beyond IFF control, it is the responsibility of the user both to determine safe conditions for the use of this product and to assume liability of loss, damage, or expense arising out of the product's improper use. No warranty expressed or implied regarding the product described herein shall be created by or inferred from any statement or omission in this MSDS. Various Federal, State or Provincial agencies may have specific regulations concerning the transportation, handling, storage, use, or disposal of this product which may not be reflected in this MSDS. The user should review these regulations to ensure full compliance.

Version : 2
Revision Date : 05/11/2015

International Flavors & Fragrances
(Zhejiang) Co., Ltd.
Hangzhou Economic & Technological
Development Area No. 321, 20 Ave 310018 Zhejiang
ZHEJIANG

Telephone: +8657128928321

International Flavors & Fragrances
(Zhejiang) Co., Ltd.
Hangzhou Economic & Technological
Development Area No. 321, 20 Ave 310018 Zhejiang
ZHEJIANG

Telefax: +8657128928306