

Safety Data Sheet

(Prepared in accordance with Regulation HCS 2012)

This Safety Data Sheet cancels and replaces all preceding SDS for this Product

SECTION 1 IDENTIFICATION

1.1 Product identifier – Mandarin Zest

References: Prolitec 9012
Firmenich 480376KW

1.2 Relevant Identified Use of the substance and uses advised against

The Relevant Identified Use is low concentration air treatment applications with Prolitec Air/Q Atmospheres series continuous-action micro-droplet generation and diffusion systems. For Relevant Identified use only. Workplace Safety Information for the Relevant Identified Use is contained in Section 16.

1.3 Details of the supplier of the safety data sheet

Prolitec Inc.
1235 W. Canal Street
Milwaukee, WI 53233 USA
Tel: +1 414 615 4630 Fax +1 414 615 4640
Email: sds@prolitec.com

1.4 Emergency telephone number

For chemical emergency (spill, leak, exposure or incident)
Call INFOTRAC: +1-800-535-5053 (inside USA) or +1-352-323-3500 (outside USA).

SECTION 2 HAZARDS IDENTIFICATION

Applicable only to exposure to the concentrated liquid such as may occur in an accidental spill. Safety information for the Relevant Identified Use as defined in Section 1.2 above is contained in Section 16.

2.1 Classification of the substance or mixture

2.1.1 Classification according to Regulation HCS 2012

Aspiration Hazard - Cat. 1	H305
Skin Irritation - Cat. 2	H315
Skin Sensitization - Cat. 1	H317
Eye Irritation - Cat. 2A	H319
Environmental Hazard (chronic) - Cat. 2	H411

2.1.2 Additional information

Full text of listed statements: See Section 16

2.2 Label elements

Hazard pictograms:



Signal word:

Danger

Hazard statements:

H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H411	Toxic to aquatic life with long lasting effects.

Precautionary statements:

P264	Wash hands thoroughly after handling.
P273	Avoid release to the environment.
P280	Wear protective gloves and eye protection.
P301+310	IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

2.3 Hazards not otherwise classified:

SECTION 3 COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Not applicable

3.2 Mixtures

10.0 - 15.0%	Classification: Xn N - R38,R43,R50/53,R65,R10
Limonene	GHS Classification:
N° CAS : 0000138-86-3	Aspiration Hazard - Cat. 1 [H304]
N° EINECS: 205-341-0	Skin Sensitization - Cat. 1B [H317]
	Skin Irritation - Cat. 2 [H315]
	Environmental Hazard (acute) - Cat. 1 [H400]
	Environmental Hazard (chronic) - Cat. 1 [H410]
	Flammable Liquid - Cat. 3 [H226]
2.5 - 5.0%	Classification: Xi - R38
1,6-Octadien-3-Ol, 3,7-Dimethyl-	GHS Classification:
N° CAS : 0000078-70-6	Skin Irritation - Cat. 2 [H315]
N° EINECS: 201-134-4	Eye Irritation - Cat.2A [H319]
	Flammable Liquid - Cat. 4 [H227]

1.0 - 2.5%
Cyclohexanepropanol,
.Alpha.,.Alpha.-Dimethyl-
N° CAS : 0083926-73-2
N° ELINCS: 420-630-3
N° REACH: 01-
0000016725-66

Classification: Xi N - R41,R51/53
GHS Classification:
Eye Damage - Cat.1 [H318]
Environmental Hazard (chronic) - Cat. 2 [H411]

1.0 - 2.5%
7-Octen-2-Ol, 2,6-
Dimethyl-
N° CAS : 0018479-58-8
N° EINECS: 242-362-4

Classification: Xi - R38
GHS Classification:
Eye Irritation - Cat.2A [H319]
Flammable Liquid - Cat. 4 [H227]

0.1 - 0.5%
Oxacyclohexadec-12-En-
2-One, (12e)-
N° CAS : 0111879-80-2
N° ELINCS: 422-320-3
N° REACH: 01-
0000016883-62

Classification: N - R50/53
GHS Classification:
Environmental Hazard (acute) - Cat. 1 [H400]
Environmental Hazard (chronic) - Cat. 1 [H410]

0.1 - 0.5%
6-Octen-1-Ol, 3,7-
Dimethyl-
N° CAS : 0000106-22-9
N° EINECS: 203-375-0

Classification: Xi N - R38,R43,R51/53
GHS Classification:
Skin Sensitization - Cat. 1B [H317]
Skin Irritation - Cat. 2 [H315]
Eye Irritation - Cat.2A [H319]

0.1 - 0.5%
3-Cyclohexene-1-
Carboxaldehyde, 2,4-
Dimethyl-
N° CAS : 0068039-49-6
N° EINECS: 268-264-1

Classification: Xi - R36/38,R43,R52/53
GHS Classification:
Skin Sensitization - Cat. 1B [H317]
Skin Irritation - Cat. 2 [H315]
Eye Irritation - Cat.2A [H319]
Environmental Hazard (chronic) - Cat. 3 [H412]
Flammable Liquid - Cat. 4 [H227]

0.1 - 0.5%
1,3-Benzodioxole-5-
Propanal, .Alpha.-Methyl-
N° CAS : 0001205-17-0
N° EINECS: 214-881-6

Classification: Xi N - R51/53,R43
GHS Classification:
Skin Sensitization - Cat. 1B [H317]
Environmental Hazard (chronic) - Cat. 2 [H411]

0.1 - 0.5%
Heptanoic Acid, 2-
Propenyl Ester
N° CAS : 0000142-19-8
N° EINECS: 205-527-1

Classification: T N - R21/22,R50/53,R23
GHS Classification:
Acute Toxicity (oral) - Cat. 3 [H301]
Acute Toxicity (dermal) - Cat. 3 [H311]
Acute Toxicity (inhalation) - Cat. 3 [H331]
Environmental Hazard (acute) - Cat. 1 [H400]
Environmental Hazard (chronic) - Cat. 3 [H412]
Flammable Liquid - Cat. 4 [H227]

0.1 - 0.5%
Benzene, 1-Methyl-4-(1-Methylethyl)-
N° CAS : 0000099-87-6
N° EINECS: 202-796-7

Classification: Xn N - R51/53,R65,R10
GHS Classification:
Aspiration Hazard - Cat. 1 [H304]
Environmental Hazard (chronic) - Cat. 2 [H411]
Flammable Liquid - Cat. 3 [H226]

0.1 - 0.5%
2,6-Octadien-1-Ol, 3,7-Dimethyl-, (E)-
N° CAS : 0000106-24-1
N° EINECS: 203-377-1

Classification: Xi - R43,R38,R41
GHS Classification:
Eye Damage - Cat.1 [H318]
Skin Sensitization - Cat. 1B [H317]
Skin Irritation - Cat. 2 [H315]

0 - 0.1%
2-Buten-1-One, 1-(2,6,6-Trimethyl-1,3-Cyclohexadien-1-Yl)-
N° CAS : 0023696-85-7
N° EINECS: 245-833-2

Classification: Xi N - R43,R51/53
GHS Classification:
Skin Sensitization - Cat. 1A [H317]
Environmental Hazard (chronic) - Cat. 2 [H411]

SECTION 4 FIRST AID MEASURES

4.1 Description of first aid measures

As in all cases of potential poisoning, obtain medical advice immediately.

In the case of eye contact:

Irrigate copiously with water for at least 10 minutes. Obtain medical advice if any irritation persists.

In the case of inhalation:

In case of situations other than the Relevant Identified Use: Remove the affected individual to fresh air environment. Obtain medical advice immediately if irritation persists.

In the case of skin contact:

Remove contaminated clothes. Wash skin with large volumes of water (or soap and water). If irritation persists, or any sign of tissue damage is apparent, obtain medical advice immediately.

In the case of ingestion:

In the event of accidental ingestion, rinse mouth with water. Give up to 1 tumbler (half pint) of milk. Do not induce vomiting. Obtain medical advice immediately.

4.2 Most important symptoms and effects, both acute and delayed

No information available on the product

4.3 Indication of immediate medical attention and special treatment needed

None known.

SECTION 5 FIRE FIGHTING MEASURES

5.1 Suitable extinguishing media

Use adequate extinguishers with foam, carbon dioxide or dry chemical.

5.2 Unsuitable extinguishing media

Do not use a high pressure water stream.

5.3 Special hazards arising from the substance or mixture

None known.

5.4 Advice for firefighters

Do not use a high pressure water stream. In case of insufficient ventilation, wear suitable respiratory equipment.

SECTION 6 ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

6.1.1 For Non-emergency personnel:

Use protective gloves when handling a spillage. Do not smoke. Avoid naked flames or other potential sources of ignition such as electrical equipment. Avoid contact with skin or eyes and inhalation of vapor. Use normal washing routines. Ensure adequate ventilation in working areas following a spill. Follow First Aid Measures in 4 above.

6.1.2 For emergency responders:

Follow the recommendation in 6.1

6.2 Environmental Precautions

Do not discharge into drains, soil or the aquatic environment.

6.3 Methods and material for containment and cleaning up

6.3.1 For containment:

Small spills can be wiped up with a cloth or paper. For larger spills, use standard absorbents such as saw dust, sand or vermiculite.

6.3.2 For cleaning up:

Use cloth or paper for spills from the smaller cartridges. If a larger cartridge is spilled use an absorbent such as saw dust, vermiculite or sand. Dispose of clean up materials in accordance with government regulations.

6.4 References to other sections

Please see also sections 4, 5, 7 and 16 for further information.

SECTION 7 HANDLING AND STORAGE

7.1 Precautions for safe handling

Wear adequate protective gloves and eye protection
No smoking; avoid sources of ignition
Avoid exposing to high temperature during processing
Do not ingest or apply to skin
Always reseal any cartridge removed from an appliance.
Keep cartridges in an upright position after unsealing.
Avoid contact with skin and eyes
Follow good personal washing routines
Where the product is handled maintain adequate ventilation

7.1.1 Protective measures

Keep strict control of dust accumulation. Maintain adequate ventilation, avoid naked flames and other sources of ignition.

7.1.2 Advice on general occupational hygiene

Use good washing routines.

7.2 **Conditions for safe storage, including any incompatibilities**

Store in cartridges positioned upright in a master carton in a place without exposure to sunlight at room temperature.

7.3 **Specific end uses**

Environmental fragrance. See Relevant Identified Use in Section 1.2.

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 **Control parameters:**

0000138-86-3 : d-Limonene (All forms)
AIHA Workplace Environmental Exposure Levels (1999-JAN)
TWA (1999-JAN) : 30 ppm , 8 hours (All forms)

Also see Section 16.3

8.2 **Exposure controls**

Avoid exposing to high temperatures; maintain adequate ventilation.

8.2.1 Appropriate engineering controls

Maintain adequate ventilation where produce is handled.
In the Relevant Identified Use – use only as directed.

8.2.2 Environmental exposure controls

In the Relevant Identified Use, use as directed.
In handling of the liquid, minimize release into the environment.

8.2.3 Personal Protection

In the Relevant Identified Use and in handling the cartridges, personal protective wear is not required. In the bulk handling of the liquid or in accidental spill clean-up, protective gloves and safety glasses are required.
Hand protection: Adequate Protective Gloves should be worn.
Eye protection: Adequate safety glasses should be used.
Skin protection: Wear protective clothing, overall if necessary to limit the odour contamination of personal clothing. Individual washing routines should be followed after any potential contact.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

9.1 **Information on the basic physical and chemical properties**

(a) Appearance:	LIQUID Pale Yellow to Yellow
(b) Odor	Strong perfume
(c) Odor Threshold	Not available
(d) pH	Not Available
(e) Melting Point/Freezing Point range (°C)	Not Available

(f) Initial Boiling Point/range °C	Not Available
(g) Flash Point (closed cup)	78°C / 172.4°F
(h) Evaporation Rate	Not Available
(i) Flammability (solid/gas)	Low
(j) Upper/Lower Explosion Limits	Not Available
(k) Vapor Pressure	0.1 Hg @ 20°C
(l) Vapor Density	Not applicable
(m) Relative Density	.864 - .874
(n) Water Solubility	Not Applicable
(o) Partition coefficient (n-octanol/water):	Not Applicable
(p) Auto Ignition Temperature	Unknown
(q) Decomposition Temperature	Not Available
(r) Viscosity	Not Available
(s) Explosive Properties	None
(t) Oxidizing Properties	Not an oxidizing agent

9.2 Other information

None

SECTION 10 STABILITY AND REACTIVITY

10.1 Reactivity

No known reaction with water.

10.2 Chemical stability

Presents no significant reactivity hazard. Normally stable even at elevated temperatures and pressures. Does not undergo explosive decomposition. It is not pyrophoric or an oxygen donor. Does not combine with other organic materials to form explosive mixtures. Will not undergo hazardous exothermic polymerization.

10.3 Possibility of hazardous reactions

Not known.

10.4 Conditions to avoid

Avoid contact with oxidizing agents.
Avoid temperatures above 5° C below the flash point.
Do not heat cartridge or closed containers.

10.5 Incompatible materials

Avoid oxidizing agents.

10.6 Hazardous decomposition products

Contact with water or storage under recommended conditions for one year should not produce dangerous decomposition products.

SECTION 11 TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

This mixture has not been subjected to toxicological testing as an entity. According to available data on the constituents, the health classification criteria are met.

SECTION 12 ECOLOGICAL INFORMATION

12.1 Toxicity

This mixture has not been subjected to eco-toxicological testing as an entity. In view of the difficulty of using current standard eco-toxicological evaluation techniques to predict the impact of particular modes of release on vulnerable or localized parts of the ecosystem, this preparation should be considered and handled as if it displayed potential environmental hazards, and treated in consequence with all possible precaution.

12.2 Persistence and biodegradability

Not determined

12.3 Bioaccumulative potential

Not determined.

12.4 Mobility in soil

Not determined.

12.5 Results of PBT and vPvB assessment

Does not meet the requirements for assessment

12.6 Other adverse effects

None known.

SECTION 13 DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Best means of disposal of any product is through its proper use according to instructions. Disposal must be in accordance with local, state and national requirements.

This product is dangerous for the environment. Do not discharge to sewers, drains or water courses. This product must be disposed of as hazardous waste. The empty container may be disposed of as controlled waste in accordance with appropriate regulations. The containers are recyclable in some countries equipped to recycle Polypropylene.

SECTION 14 TRANSPORT INFORMATION

14.1 UN number:

3082
IMDG Not regulated per 2.10.2.7
IATA Not regulated per Special Provision 197

14.2 Proper Shipping Name:

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID,
N.O.S. (LIMONENE)

14.3 Transport Hazard Class:

ADR/RID 9
IMDG N/A
IATA N/A

14.4 Packing Group:

ADR/RID III

IMDG N/A
IATA N/A

14.5 Environmental hazard: Marine Pollutant

14.6 Special Precautions for user: None

Limited Quantity Exemptions Transport is pursuant to IATA and IMO Limited Quantity exemptions. The individual inner packages do not exceed 5 liters and the master or outer carton does not exceed 30 kilograms.



Note for transport

Local, state or national requirements may apply to the carriage of this product.

SECTION 15 REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture:

NFPA Hazard Classification

Health 2

Flammability 2

Reactivity 0

This mixture contains no toxic chemical or chemicals subject to reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 29 CFR Part 1910.1200.

15.2 Chemical safety assessment

No data available at this time.

SECTION 16 OTHER INFORMATION

16.1 Revisions

17-June-2013: Version 1.1 – First version validated for publication

27-Jan-2014: Version 1.2 – Updates to sections 1, 16

27-May-2015: Version 1.3 – Updates to sections 1, 2, 6, 8, 14, 16

16.2 Key literature references and sources of data

Research Institute for Fragrance Materials (RIFM)

OECD SIDS Organization for Economic Cooperation and Development (OECD),

United States Environmental Protection Agency. Voluntary Testing Program for High Volume Chemicals

COUNCIL DIRECTIVE 98/24/EC of 7 April 1998

The protection of the health and safety of workers from the risks related to chemical agents at work (fourteenth individual Directive within the meaning of Article 16(1) of Directive 89/391/EEC)

EUROPEAN COMMISSION, Recommendation from the Scientific Committee for Occupational Exposure Limits, February, 2013 (SCOEL)

EU IUCLID International Uniform Chemical Information Data Base

European Chemicals Agency European Commission Council Directive 98/24/EC – the first and the second lists of IOELs and amending Directives 91/322/EEC and 2000/39/EC. (98/24/EC)

American Congress of Governmental and Industrial Hygienist (“ACGIH”)

Threshold Limited Values (TLV) and Biological Exposure Indices (BEI) including TLV – TWA (time-weighted average; TLV–STEL (short term exposure limit); and TLV-C (ceiling). (ACGIH)

Institut National de Recherche et de Sécurité (INRS)

Valeurs limites d'exposition professionnelle (Occupational Exposure Limits or OELs) aux agents chimiques en France, Aide-mémoire technique ED 984. Comité Scientifique pour la Surveillance des Atmosphères de Travail (Scientific Committee for Surveillance of the Workplace), working under the High Council for the Prevention of Occupational Hazards Environment.

U.S. Department of Labor, Occupational Safety and Health Administration (OSHA)

29 CFR 1910.1200 Subpart Z, Table Z-1 TLV-TWA maximum continuous exposure limits.

US State of California, Environmental Protection Agency

Office of Health Hazard Assessment (OEHHA), Safe Drinking Water and Toxic Enforcement Act of 1986. Maximum continuous exposure TLV-TWA Limits.

German Federal Ministry of Labor and Social Affairs (BMAS)

TRGS 900 Arbeitsplatzgrenzwert (Occupational Exposure Limits) Ausschuss für Gefahrstoffe - AGS-Geschäftsführung - BAuA

Decreto Legislativo del Governo n.277, 15/08/1991 Decreto Legislativo n.66, 25/02/2000, Decreto Ministeriale 26/02/2004 <http://www.ambiente.it/sicurezza/legislazione/leggi/2004/dm26-2-2004.htm>

Bundesanstalt für Arbeitsschutz und Arbeitsmedizin; Federal Institute for Occupational Safety and Health, Dortmund, Germany

Instituto Nacional de Seguridad e Higiene en el Trabajo (INSHT), Spain

Límites de exposición profesional para agentes químicos en España.

Safework Australia <http://hsis.safeworkaustralia.gov.au/HazardousSubstance> and Guidance on the Interpretation of Workplace Exposure Standards for Airborne Contaminants published by Safework 10 May 2013.

16.3 Workplace safety information for Relevant Identified Use

The ACGIH, the EU, EU member states, and other national organizations including those listed in 16.1 above have established occupational exposure limits (OELs) limits for concentrations of hazardous substances in workplace air (“Limits”). The Limits value is the limit of the time-weighted average of the concentration of a substance in the air within the breathing zone of a worker over a specified reference period which is usually 40 hours per week over 40 years. The Limits, depending on their source, are also called Indicated Occupational Exposure Limit (IOEL) or Threshold Limit Value (TLV-TWA).

16.3.1 The Product may contain substances which are subject to workplace Limits. (Please refer to Section 8.1.)

16.3.2 Workplace Safety Evaluation

If fragrance mixture contains a substance subject to workplace limitations (See Section 8.1), the Relevant Identified Use of the Product has been evaluated for workplace safety considering: (A) the average airborne concentration (reported as parts per million PPM) of the total mixture when the scent effect is assessed by humans as “Intolerable;” (B) the volume by weight of the substance (reported as a %) of the weight of the total mixture represented by the substance as a proportion of

the mixture ; (C) the maximum average potential airborne concentration of the substance; and (D) the lowest safe limit according to the sources listed in 16.2. The safety evaluation formula is $A \text{ (ppm)} \times B \text{ (\%)} = C$, which is then compared to the Limits in D, and there is a margin of safety (MoS) of at least 100.

16.3.3 Workplace Safety Determination

If fragrance mixture contains a substance subject to workplace limitations (See Section 8.1), the Relevant Identified Use of the Product is estimated to not exceed the Limits established by the organizations listed in 16.2.

16.3.4 Ozone

The Formulation contains no ozone and the Relevant Identified Use does not generate ozone. The Formulation contains no toxic chemical or chemicals subject to reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986.

16.3.5 Fire and Explosion Information

Flashpoint: The Flash or Ignition point is determined by the **Pensky–Martens closed-cup flash-point test**. A brass cup is filled with the pure liquid and fitted with a cover. The sample is heated and stirred at specified rates. An ignition source is directed into the cup at regular intervals with simultaneous interruption of stirring until a flash that spreads throughout the inside of the cup is seen. The corresponding temperature is its flash point or ignition point. In this test, the liquid and the vapor in the brass cup are assumed to be in equilibrium which, among other things, means that the vapor concentration is condensing into liquid at the same rate as the vapor is produced off the liquid surface – the so-called “saturation point.”

Explosive Limits: In the Relevant Identified Use, the measure of risk of flammability is the *Flammable or Explosive Range*. This is the range of concentration of the vapor emitted by Prolitec Appliances will burn (or explode) if an ignition source such as an open flame is introduced. Below the explosive or flammable range the concentration of the mixture is too low to burn and above the upper explosive or flammable limit the mixture is too high or rich to burn. This is usually referred to as the LEL or Lower Explosive Limit and UEL Upper Explosive Limit.

Risk Assessment: The Formulation in the Relevant Identified Use as directed does not present concentrations within the explosive range at any step or stage.

16.3.6 Ingestion Toxicity

The probable oral lethal dosage of the Formulation (LD 50) for a 150 lbs person is 550.90 ml as determined using the Gosselin formula. According to the Hodge and Sterner scale the Toxicity Class for the Formulation is estimated at level 4 or “Slightly Toxic.” The Gosselin, Smith and Hodge Scale is Level 3 or “Moderately Toxic.”

16.3.7 IFRA Analysis and Safety Determination for Skin Contact

<u>FRAGRANCE</u>	<u>IFRA CLASS</u>	<u>IFRA ANALYSIS</u>
Mandarin Zest	11A	Not restricted

IFRA Class 11A includes:

- Air Fresheners and Fragrancing of all types (plug-ins, solid substrate, membrane delivery, ambient, electrical) excluding aerosol products.
- Scent delivery system using a dry air technology that releases a fragrance without sprays, aerosols or heated oils (technology of nebulization).

Based on safety data generated by the Research Institute for Fragrance Materials (“RIFM” www.RIFM.org), its vendors and the open scientific literature. This data is evaluated in

accordance with the principles laid down in Annex 1 to the International Fragrance Association (“IFRA” www.ifraorg.org) Code of Practice. Annex 1 requires consideration of possible effects in the skin, including skin irritation and sensitization with special attention paid to the effect of sunlight, should ingredients absorb ultra-violet radiation. Systemic toxicity should be considered in relation to the quantities used and likelihood of entering the body. Also considered is a history of safe-use of the ingredients at the concentration levels which may occur in the event of accidental release taking into account any reports of adverse effects reported by dermatologists or other medical professionals.