

MATERIAL SAFETY DATA SHEET

According to Regulation (EU) No 453/2010

SECTION 1 IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Product name : VECTAIR AIROMA CITRUS TINGLE AERO-04

Product code : 1252131

1.2. Relevant identified uses of the substance or mixture and uses advised against

Application : SU22 Professional use. For industrial or institutional use. Airfreshener.

1.3. Details of the supplier of the safety data sheet

Supplier : Vectair System LTD
Unit 3, Trident Centre, Armstrong Road
RG248NU BASINGSTOKE, HAMPSHIRE, Great Britain

Telephone : +44 1256 319500
Fax : +44 1256 319520
E-mail : msds@vectairsystems.com
Website : <http://www.vectairsystems.com>

1.4. Emergency telephone number

EMERGENCY TELEPHONE NUMBER, for DOCTORS/FIRE BRIGADE/POLICE only:

GB - Telephone : +44 1256 319500

(During office hours only)

EMERGENCY TELEPHONE NUMBER (for DOCTORS only):

(24/7)

SECTION 2 HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

Classification (99/45/EC) : Sensitizing. Extremely flammable. Dangerous for the environment.

CLP classification (1272/2008/EC) : Aerosols, category 1. Eye irritation, category 2. Specific target organ toxicity after single exposure, category 3. Skin sensitization, category 1. Hazardous to the aquatic environment — Chronic category 3.

Human health hazards : May cause an allergic skin reaction. Causes serious eye irritation. May cause drowsiness or dizziness. Exposure to high vapour concentrations may result in a narcotic effect. Use only as directed. Intentional misuse by deliberately concentrating and inhaling contents can be harmful or fatal.

Physical/chemical hazards : Extremely flammable. Keep away from sources of ignition — No smoking. Do not spray on a naked flame or any incandescent material. Do not spray near fire, sources of heat or live electrical equipment. Aerosol may explode from internal pressure build-up when exposed to temperatures exceeding 50 °C.

Environmental hazards : Harmful to aquatic life with long lasting effects.

Other information : Keep out of the reach of children. Avoid contact with skin. Wear suitable gloves. Caution: Do not breathe spray. Use only in well-ventilated areas. Spray in short intervals for a short period only. Ventilate well after use. Harmful to house pets.

2.2. Label elements

Label elements (99/45/EC):

Hazard symbols :



Xi: Irritant



F+: Extremely flammable

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R- and S-phrases : R12 Extremely flammable.
R43 May cause sensitisation by skin contact.
R52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
S2 Keep out of the reach of children.
S16 Keep away from sources of ignition — No smoking.
S23 Aerosol Do not breathe spray.
S24 Avoid contact with skin.
S37 Wear suitable gloves.
S51 Use only in well-ventilated areas.

Additional labelling : Important: Pressurized container; protect from sunlight and do not expose to temperatures exceeding 50°C. Do not pierce or burn, even after use. Do not spray on a naked flame or any incandescent material.

Label elements (1272/2008/EC):

Hazard pictograms :



Signal word : Danger

H- and P-phrases : H222 Extremely flammable aerosol.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H336 May cause drowsiness or dizziness.
H229 Pressurised container: May burst if heated.
H412 Harmful to aquatic life with long lasting effects.
P251 Do not pierce or burn, even after use.
P410+P412 Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122 °F.
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P211 Do not spray on an open flame or other ignition source.
P261 spray Avoid breathing spray.
P403 Store in a well-ventilated place.

Additional labelling (99/45/EC and/or 1272/2008/EC)

: Contains: d-Limonene
: Where the mixture is labelled in accordance with Regulation (EC) No 1272/2008 (CLP) the packaging shall (also) carry the text: Contains: Propan-2-ol Citral Citronellol Geranyl acetate Geraniol

2.3. Other hazards

Other information : The classification of this product is based on the non-aerosolised form of the mixture (on basis of section 1.1.3.7. of Regulation (EC) No 1272/2008). Does not contain PBT or vPvB substances in concentrations higher than 0,1%.

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

3.2. Mixtures

Product description : Mixture.

Information on hazardous substances:

Substance name	Concentration (w/w) (%)	CAS nr.	EC number	Symbols	R-phrases
Isobutane	50 - 75	75-28-5	200-857-2	F+	12
Ethanol	10 - < 20	64-17-5	200-578-6	F	11
Propane	10 - < 20	74-98-6	200-827-9	F+	12

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Propan-2-ol	5 - < 10	67-63-0	200-661-7	F; Xi	11-36-67
Propyleneglycol	1 - < 5	57-55-6	200-338-0	-----	-----
Butane	1 - < 5	106-97-8	203-448-7	F+	12
d-Limonene	1 - < 2,5	5989-27-5	227-813-5	Xi; N	10-38-43-50/53-65
p-Menth-1-en-8-ol	0,1 - < 1	98-55-5	202-680-6	Xi	36/38
Linalool	0,1 - < 1	78-70-6	201-134-4	Xi	38
Citral	0,1 - < 1	5392-40-5	226-394-6	Xi	38-43
Citronellol	< 0,1	106-22-9	203-375-0	Xi; N	38-43-51/53
Geranyl acetate	< 0,1	105-87-3	203-341-5	Xi; N	38-43-51/53
Geraniol	< 0,1	106-24-1	203-377-1	Xi	38-41-43

Reference is made to chapter 16 for full text of each relevant R phrase. Occupational exposure limit(s), if relevant, are listed in section 8.

Substance name	REACH nr.	Hazard Class	Pictograms	H-phrases
Isobutane	01-2119485395-27	Flam. Gas 1; Press. Gas	GHS02; GHS04	H220; H280
Ethanol	01-2119457610-43	Flam. Liq. 2; Eye Irrit. 2	GHS02; GHS07	H225; H319
Propane	01-2119486944-21	Flam. Gas 1; Press. Gas	GHS02; GHS04	H220; H280
Propan-2-ol	01-2119457558-25	Flam. Liq. 2; Eye Irrit. 2; STOT SE 3	GHS02; GHS07	H225; H319; H336
Propyleneglycol	01-2119456809-23	-----	-----	-----
Butane	01-2119474691-32	Flam. Gas 1; Press. Gas	GHS02; GHS04	H220; H280
d-Limonene	01-2119529223-47	Flam. Liq. 3; Skin Irrit. 2; Skin Sens. 1B; Asp. Tox. 1; Aquatic Acute 1; Aquatic Chronic 1	GHS02; GHS07; GHS09; GHS08	H226; H304; H315; H317; H410
p-Menth-1-en-8-ol	01-2119980717-23	Skin Irrit. 2; Eye Irrit. 2	GHS07	H315; H319
Linalool	01-2119474016-42	Skin Irrit. 2	GHS07	H315; H319
Citral	01-2119462829-23	Skin Irrit. 2; Skin Sens. 1	GHS07	H315; H317
Citronellol	01-2119453995-23	Eye Irrit. 2; Skin Irrit. 2; Skin Sens. 1B	GHS07	H319; H317; H315
Geranyl acetate	01-2119973480-35	Skin Irrit. 2; Skin Sens. 1; Aquatic Chronic 3	GHS07	H315; H317; H412
Geraniol	01-2119552430-49	Skin Sens. 1; Eye Dam. 1; Skin Irrit. 2	GHS05; GHS07	H317; H318; H315

Reference is made to chapter 16 for full text of each relevant H phrase.

SECTION 4 FIRST-AID MEASURES

4.1. Description of first aid measures

First aid measures

- Inhalation : Move victim into fresh air. Consult a doctor if victim feels unwell.
- Skin contact : Take off contaminated clothing. Wash off skin with plenty of water and soap before product dries up. Consult a doctor if irritation occurs.
- Eye contact : Wash out with (lukewarm) water for at least 15 minutes. Remove contact lenses. Consult a doctor.
- Ingestion : Aerosol/mist: Ingestion is unlikely to occur.

4.2. Most important symptoms and effects, both acute and delayed

Effects and symptoms

- Inhalation : May cause headache, dizziness and a feeling of sickness. May cause irritation to respiratory airways and coughing.
- Skin contact : May cause redness and irritation, sensitisation. May produce an allergic reaction. May cause dry skin and redness.
- Eye contact : Irritant. May cause redness and pain.
- Ingestion : Aerosol/mist: Ingestion is unlikely to occur.

4.3. Indication of any immediate medical attention and special treatment needed

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Note to physicians : None known.

SECTION 5 FIRE-FIGHTING MEASURES

5.1. Extinguishing media

Extinguishing media

Suitable : Carbondioxide (CO₂). Alcohol resistant foam. Dry chemical. Water fog.

Not suitable : Water jet.

5.2. Special hazards arising from the substance or mixture

Special exposure hazards : Aerosol may explode from internal pressure build-up when exposed to temperatures exceeding 50 °C. Do not expose emergency personnel to overheated aerosol containers. Water may be used to cool container and prevent explosion of the aerosol.

Hazardous thermal decomposition products : Carbon monoxide may be evolved if incomplete combustion occurs.

5.3. Advice for firefighters

Special protective equipment for fire-fighters : Fight a fire where aerosols are involved from a protected position. Use adequate respiratory equipment in case of insufficient ventilation.

SECTION 6 ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions : Danger of slipping. Clean up spills immediately. Wear shoes with non-slip soles. Avoid contact with spilled or released material. Do not breathe vapours and/or spray. Keep away from sources of ignition — No smoking. Build up of highly flammable gasses involves an explosion risk. Vapours are heavier than air. Build up (of gasses) in low areas involves risk of suffocation.

6.2. Environmental precautions

Environmental precautions : Avoid release of product into sewers, surface water and/or ground water. Waste product should not be allowed to contaminate soil or water.

Other information : Notify authorities if any exposure to the general public or the environment occurs or is likely to occur.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Collect spilled material in containers. Collect cans in an approved container. Do not pierce aerosols. Wash away remainder with plenty of water and soap.

6.4. Reference to other sections

Reference to other sections : See also section 8.

SECTION 7 HANDLING AND STORAGE

7.1. Precautions for safe handling

Handling : Handle in accordance with good occupational hygiene and safety practices in well-ventilated areas. Important: Pressurized container; protect from sunlight and do not expose to temperatures exceeding 50°C. Do not pierce or burn, even after use. Keep away from sources of ignition — No smoking. Do not spray on a naked flame or any incandescent material. Do not spray near fire, sources of heat or live electrical equipment. Electrostatic discharge may cause fire. Ensure electrical continuity by bonding and grounding (earthing) all equipment. Do not breathe spray. Do not breathe vapour. Avoid contact with skin and eyes.

7.2. Conditions for safe storage, including any incompatibilities

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Storage : Keep frost-free, in a cool (< 35°), dry and well-ventilated place. Protect from sunlight and keep away from heat.

Recommended packaging : Not applicable.

7.3. Specific end use(s)

Use : Use only as directed.

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Occupational exposure limits : Occupational exposure limits have not been established for this product. Derived no-effect levels (DNEL) have not been established for this product. Predicted no-effect concentrations (PNEC) have not been established for this product.

Workplace exposure limits (mg/m³):

Chemical name	Country	TWA 8 hour (mg/m ³)	STEL 15 min (mg/m ³)	Comments
Isobutane		1900	2400	
Ethanol	GB	1920	-	-
Ethanol		260	1900	Mac: NL
Propane		1800	-	
Propan-2-ol	GB	999	1250	-
Propyleneglycol	GB	474	-	Total Vapour and Particulates
Propyleneglycol		474	-	MAC UK: Total Vapour and Particulates
Butane	GB	1450	1810	-
Butane		1450	1810	-
d-Limonene		110	-	MAC: DE, CH, NL

Derived no-effect level (DNEL) for workers:

Chemical name	Route of exposure	DNEL, short-term		DNEL, long-term	
		Local effect	Systemic effect	Local effect	Systemic effect
Ethanol	Dermal	1900 mg/m ³		10 mg/m ³	343 mg/kg bw/day
	Inhalation				950 mg/m ³
Propan-2-ol	Dermal				888 mg/kg bw/day
	Inhalation				500 mg/m ³
Propyleneglycol	Inhalation				168 mg/m ³
d-Limonene	Inhalation				33,3 mg/m ³
Linalool	Dermal		5 mg/kg bw		2,5 mg/kg bw/day
	Inhalation		16,5 mg/m ³		2,8 mg/m ³
Citral	Dermal				1,7 mg/kg bw/day
	Inhalation				9 mg/m ³
Citronellol	Dermal				45,8 mg/kg bw/day
	Inhalation				161,6 mg/m ³
Geranyl acetate	Dermal				35,5 mg/kg bw/day
	Inhalation				62,59 mg/m ³
Geraniol	Dermal				12,5 mg/kg bw/day
	Inhalation				161,6 mg/m ³

Derived no-effect level (DNEL) for consumers:

Chemical name	Route of exposure	DNEL, short-term		DNEL, long-term	
		Local effect	Systemic effect	Local effect	Systemic effect
Ethanol	Dermal				206 mg/kg bw/day
	Inhalation	950 mg/m ³			114 mg/m ³
	Oral				87 mg/kg bw/day

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Propan-2-ol	Dermal			319 mg/kg bw/day
	Inhalation			89 mg/m ³
	Oral			26 mg/kg bw/day
Propyleneglycol	Inhalation		10 mg/m ³	50 mg/m ³
d-Limonene	Inhalation			8,33 mg/m ³
	Oral			4,76 mg/kg bw/day
Linalool	Dermal	2,5 mg/kg bw	15 mg/kg bw/day	1,25 mg/kg bw/day
	Inhalation	4,1 mg/m ³		0,7 mg/m ³
	Oral	1,2 mg/kg bw		0,2 mg/kg bw/day
Citral	Dermal			1 mg/kg bw/day
	Inhalation			2,7 mg/m ³
	Oral			0,6 mg/kg bw/day
Citronellol	Dermal			27,5 mg/kg bw/day
	Inhalation			47,8 mg/m ³
	Oral			13,75 mg/kg bw/day
Geranyl acetate	Dermal			17,75 mg/kg bw/day
	Inhalation			15,4 mg/m ³
	Oral			8,9 mg/kg bw/day
Geraniol	Dermal			7,5 mg/kg bw/day
	Inhalation			47,8 mg/m ³
	Oral			13,75 mg/kg bw/day

Predicted no-effect concentration (PNEC):

Chemical name	Route of exposure	Fresh water	Marine water		
Ethanol	Water	0,96 mg/l	0,79 mg/l		
	Sediment	3,6 mg/kg	2,9 mg/kg		
	Intermittent water			2,75 mg/l	
	STP			580 mg/l	
	Soil			0,63 mg/kg	
	Oral			0,72 mg/kg food	
Propan-2-ol	Water	140,9 mg/l	140,9 mg/l		
	Sediment	552 mg/kg	552 mg/kg		
	Intermittent water			140,9 mg/l	
	STP			2251 mg/l	
	Soil			28 mg/kg	
	Oral			160 mg/kg food	
Propyleneglycol	Water	260 mg/l	26 mg/l		
	Sediment	572 mg/kg	57,2 mg/kg		
	Intermittent water			183 mg/l	
	STP			20000 mg/l	
	Soil			50 mg/kg	
	Oral			1133 mg/kg food	
d-Limonene	Water	0,0054 mg/l	0,0005 mg/l		
	Sediment	1,32 mg/kg	0,13 mg/kg		
	STP			1,8 mg/l	
	Soil			0,262 mg/kg	
	Oral			3,33 mg/kg food	
	p-Menth-1-en-8-ol	Water	0,068 mg/l	0,0068 mg/l	
Sediment		1,85 mg/kg	0,185 mg/kg		
STP				2,6 mg/l	
Soil				0,329 mg/kg	
Linalool		Water	0,2 mg/l	0,02 mg/l	
		Sediment	2,22 mg/kg	0,222 mg/kg	
	Intermittent water			2 mg/l	
	STP			10 mg/l	
	Soil			0,327 mg/kg	
	Oral			7,8 mg/kg food	
Citral	Water	0,0067 mg/l	0,0006 mg/l		

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Citronellol	Sediment	0,125 mg/kg	0,0125 mg/kg	
	Intermittent water			0,0678 mg/l
	STP			1,6 mg/l
	Soil			0,0209 mg/kg
	Water	0,0024 mg/l	0,00024 mg/l	
Geranyl acetate	Sediment	0,0256 mg/kg	0,00256 mg/kg	
	Intermittent water			0,024 mg/l
	STP			580 mg/l
	Soil			0,00371 mg/kg
	Water	0,00372 mg/l	0,000372 mg/l	
Geraniol	Sediment	0,442 mg/kg	0,442 mg/kg	
	Intermittent water			0,0372 mg/l
	STP			8 mg/l
	Soil			0,0859 mg/kg
	Water	0,0108 mg/l	0,0010 mg/l	
	Sediment	0,115 mg/kg	0,0115 mg/kg	
	Intermittent water			0,108 mg/l
	STP			0,7 mg/l
	Soil			0,0167 mg/kg

8.2. Exposure controls

Engineering measures : Use only in well-ventilated areas. Comply with standard precautionary measures for working with chemicals.
Hygienic measures : When using do not eat, drink or smoke.

Personal protective equipment:

The efficiency of personal protective equipment depends among other things on temperature and degree of ventilation. Always get professional advice for the particular local situation.



Body protection : Wear appropriate protective clothing, overalls or suit, and similar boots in accordance with EN 365/367 resp. 345. Suitable material: butyl. Indication of permeation breakthrough time: 1 hour.
Respiratory protection : Take care of sufficient ventilation. Wear suitable respiratory protection in case of large scale exposure. Suitable: gas filter type A (brown), class I or higher on e.g. a facemask in accordance with EN 140.
Hand protection : Wear appropriate safety gloves in accordance with EN 374. Suitable material: butyl. ± 0,5 mm. Indication of permeation breakthrough time: 1 hour.
Eye protection : Wear appropriate safety glasses with side shields, in accordance with EN 166, when there is danger of possible eye contact.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Appearance : Aerosol.
Colour : Colourless.
Odour : Perfumed.
Odour threshold : Not known.
pH : Not applicable. Almost waterfree product.
Solubility in water : Soluble.
Partition coefficient (n-octanol/water) : Not known.
Flash point : Not applicable. Not measurable.
Flammability (solid, gas) : Extremely flammable.
Auto ignition temperature : Not applicable. Aerosol container explodes before reaching the auto-ignition point.
Boiling point/boiling range : Not known. Not measurable.

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Melting point/melting range	: < 0 °C	
Explosive properties	:	Pressurised container: May burst if heated.
Explosion limits (in air)	: Not known.	Lower explosion limit in air (%): 0,7 (d-Limonene)
	:	Upper explosion limit in air (%): 19 Ethanol
Oxidising properties	: Not applicable.	Does not contain oxidizing substances.
Decomposition temperature	: Not applicable.	
Viscosity (20°C)	: Not known.	
Viscosity (40°C)	: Not known.	
Vapour pressure (20°C)	: 360000 Pa	
Vapour density (20°C)	: > 1	(air = 1)
Relative density (20°C)	: 0,621 g/ml	
Evaporation rate	: Not known.	(n-butyl acetate = 1)

SECTION 10 STABILITY AND REACTIVITY

10.1. Reactivity

Reactivity : See sub-sections below.

10.2. Chemical stability

Stability : Stable under normal conditions.

10.3. Possibility of hazardous reactions

Reactivity : No other hazardous reactions known.

10.4. Conditions to avoid

Conditions to avoid : Keep away from sources of ignition and sources of heat. See section 7.

10.5. Incompatible materials

Materials to avoid : Not applicable.

10.6. Hazardous decomposition products

Hazardous decomposition products : Not known.

SECTION 11 TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

No toxicological research has been carried out on this product.

Inhalation

Acute toxicity : Calculated LC50: > 10 mg/l. Ingredients of unknown toxicity: 2 %. ATE: > 5 mg/l. Low toxicity. Not classified - based on available data, the classification criteria are not met. May cause headache, dizziness and a feeling of sickness. May cause damage to organs. Target organ(s): Central nervous system. Effect(s): Breathing of high vapour concentrations may cause central nervous system (CNS) depression resulting in dizziness, lightheadedness, headache, nausea and loss of coordination. Continued inhalation may result in unconsciousness and death.

Corrosion/irritation : May cause irritation to respiratory airways and coughing. Not classified - based on available data, the classification criteria are not met.

Sensitisation : Not classified - based on available data, the classification criteria are not met.

Carcinogenicity : Not classified - based on available data, the classification criteria are not met.

Mutagenicity : Does not contain mutagenic substances. Not classified - based on available data, the classification criteria are not met.

Skin contact

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Acute toxicity : Calculated LD50: > 5000 mg/kg.bw. Ingredients of unknown toxicity: < 1 %. ATE: > 2000 mg/kg.bw. Low toxicity. Not classified - based on available data, the classification criteria are not met.

Corrosion/irritation : Irritant. May cause redness. Not classified - based on available data, the classification criteria are not met.

Sensitisation : May cause sensitisation by skin contact. May produce an allergic reaction.

Mutagenicity : Does not contain mutagenic substances. Not classified - based on available data, the classification criteria are not met.

Eye contact

Corrosion/irritation : Irritant.

Ingestion

Acute toxicity : Aerosol/mist: Ingestion is unlikely to occur. Calculated LD50: > 875 mg/kg.bw. Ingredients of unknown toxicity: < 1 %. ATE: > 2000 mg/kg.bw. Low toxicity. Not classified - based on available data, the classification criteria are not met. May cause hampered eyesight.

Corrosion/irritation : Aerosol/mist: Ingestion is unlikely to occur. May cause a feeling of sickness, vomiting and diarrhoea. Not classified - based on available data, the classification criteria are not met.

Carcinogenicity : Aerosol/mist: Ingestion is unlikely to occur. Not classified - based on available data, the classification criteria are not met.

Mutagenicity : Aerosol/mist: Ingestion is unlikely to occur. Does not contain mutagenic substances. Not classified - based on available data, the classification criteria are not met.

Toxicological information:

Chemical name	Property		Method	Test animal	
Ethanol	Skin irritation	Non-irritant	-----	Rabbit	
	LD50 (dermal)	15800 mg/kg bw	-----	Rabbit	
	NOAEL (inhalation)	23000 mg/m3		Rat	
	NOAEL (oral)	2400 mg/kg bw/d		Rat	
	NOAEL (fertility, oral)	20000 mg/kg bw/d	OECD 415	Rat	
	Skin sensitisation	Not sensitizing	OECD 406	Guinea pig	
	NOAEL (development, oral)	6400 mg/kg bw/d			
	LD50 (oral)	10470 mg/kg bw	OECD 401	Rat	
	LC50 (inhalation)	> 99999 mg/m3	OECD 403	Rat	
	Eye irritation	Irritant	OECD 405	Rabbit	
	NOEL (carcinogenicity, oral)	> 4400 mg/kg bw/d		Mouse	
	Genotoxicity - in vivo	Not genotoxic	OECD 478	Mouse	
	NOEL (carcinogenicity, inh.)	13 mg/m3			
	Genotoxicity - in vitro	Not genotoxic	OECD 476		
	Mutagenicity	Negative	OECD 471	Salmonella typhimurium	
	Propan-2-ol	NOAEL (oral)	870 mg/kg bw/d	-----	Rat
		LD50 (oral)	4396 mg/kg bw	-----	Rat
LD50 (dermal)		12800 mg/kg bw	-----	Rat	
LC50 (inhalation)		46600 mg/m3	-----	Rat	
Skin irritation		Slightly irritant	OECD 404	Rabbit	
Eye irritation		Irritant	OECD 405	Rabbit	
NOAEL (fertility, oral)		407 mg/kg bw/d		Rat	
NOAEL (development, oral)		400 mg/kg bw/d		Rat	
NOEL (carcinogenicity, oral)		Not carcinogenic	OECD 416	Rat	
Skin sensitisation		Not sensitizing	OECD 406	Guinea pig	
Mutagenicity		Negative	OECD 471		
NOAEL (inhalation)		12500 mg/m3	OECD 451	Rat	
Genotoxicity - in vivo		Not genotoxic	OECD 474	Mouse	
NOEL (carcinogenicity, inh.)		12500 mg/m3		Mouse	
Genotoxicity - in vitro		Not genotoxic	OECD 476		

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d-Limonene	NOEL (carcinogenicity) - estimate	Not carcinogenic	-----	-----
	NOEL (carcinogenicity, oral)	> 75 mg/kg bw/d	OECD 451	Rat
	LC50 (inhalation) - estimate	> 5000 mg/m3	-----	-----
	Genotoxicity - in vivo	> 2000 mg/kg bw/d		Rat
	Eye irritation	Non-irritant	OECD 405	Rabbit
	Mutagenicity	Negative	OECD 471	
	Skin sensitisation	10075 ug/cm2	OECD 429	Mouse
	NOAEL (development, oral)	600 mg/kg bw/d		Rat
	Skin irritation	Irritant	-----	-----
	NOAEL (oral)	30 mg/kg bw/d		Rat
	NOEL (oral)	5 mg/kg bw/d	-----	Rat
	LD50 (dermal)	> 2000 mg/kg bw	-----	Rabbit
	LD50 (oral)	4400 mg/kg bw	-----	Rat
Genotoxicity - in vitro	Not genotoxic			

SECTION 12 ECOLOGICAL INFORMATION

12.1. Toxicity

No ecotoxicological research has been carried out on this product.

Ecotoxicity : Harmful to aquatic organisms. Calculated LC50 (fish): 55 mg/l. Calculated EC50 (waterflea): 31 mg/l.
Contains < 1 % of components with unknown hazards to the aquatic environment.

12.2. Persistence and degradability

Persistence – degradability : May cause long-term adverse effects in the aquatic environment.

12.3. Bioaccumulative potential

Bioaccumulative potential : No specific information known.

12.4. Mobility in soil

Mobility : Not applicable.

12.5. Results of PBT and vPvB ass

PBT/vPvB assessment : Does not contain PBT or vPvB substances in concentrations higher than 0,1%.

12.6. Other adverse effects

Other information : Not applicable.

Ecological information:

Chemical name	Property		Method	Test animal
d-Limonene	LC50 (fish)	0,720 mg/l	OECD 203	Pimephales promelas
	EC50 (waterflea)	0,36 mg/l	OECD 202	Daphnia magna
	Ultimate aerobic biodegradation (%)	> 92 %		
	NOEC (waterflea) - chronic	0,15 mg/l.d		Daphnia magna
	Log P(ow)	4,38		
	BCF	683		

SECTION 13 DISPOSAL CONSIDERATIONS

MATERIAL SAFETY DATA SHEET

According to Regulation (EU) No 453/2010

13.1. Waste treatment methods

- Product residues : Recyclable metal container. Do not puncture or burn even after use. Do not dispose empty pack with waste produced by households. Containers may be recycled. Treat product residues and non-empty pack as hazardous waste.
- Additional warning : Residues may cause an explosion hazard. Do not puncture, cut or weld uncleaned drums.
- European waste catalogue : Dispose hazardous waste in accordance with Directive 91/689/EEC under acknowledgement of a waste code according to Commission Decision 2000/532/EC to an official chemical waste depot.
- Local legislation : Disposal should be in accordance with applicable regional, national, and local laws and regulations. Local regulations may be more stringent than regional or national requirements and must be complied with.

SECTION 14 TRANSPORT INFORMATION

14.1. UN number

UN nr. : UN 1950

14.2. UN proper shipping name

Transport name : AEROSOLS

14.3/14.4/14.5. Transport hazard class(es)/Packing group/Environmental hazards

ADR/RID/ADN (road/railway/inland waterways)

Class : 2
Classification code : 5F
Packaging group : -
Danger label : 2,1



Other information : Not intended for carriage by inland waterways in tank-vessels.

IMDG (sea)

Class : 2
Packaging group : -
EmS (fire / spill) : F - D / S - U
Marine pollutant : No

IATA (air)

Class : 2

14.6. Special precautions for user

Other information : Country specific variations may apply. It is possible that a "Limited Quantity" exemption applies to the transport of this product.

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Marpol : Not intended to be carried in bulk according to International Maritime Organisation (IMO) instruments. Packaged liquids are not considered bulk.

SECTION 15 REGULATORY INFORMATION

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

MATERIAL SAFETY DATA SHEET

According to Regulation (EU) No 453/2010

- Community regulations : Regulation (EC) No 453/2010 (REACH), Regulation (EC) No 1272/2008 (CLP), 75/324/EEC (aerosols) and other regulations.
- : In the UK it is recommended that all aerosols should be labelled on the back with the warning about the dangers of volatile solvent abuse. The label should contain the badge 'Solvent Abuse Can Kill Instantly' accompanied by the phrase 'Use only as directed'.

15.2. Chemical safety assessment

Chemical safety assessment : Not applicable.

SECTION 16 OTHER INFORMATION

16.1. Other information

The information in this safety data sheet is compiled in compliance with Regulation (EC) No 453/2010 dated 20 May 2010 and accurate to the best of our knowledge and experience at the date of issue specified. It is the user's obligation to use this product safely and to comply with all applicable laws and regulations concerning the use of the product. This safety data sheet complements the technical information sheets but does not replace them and offers no warranty with regard to product properties.

Users are also forewarned for any hazards involved when the product is used for other purposes than those for which it is designed.

Changed or new information with regard to the previous release is indicated with an asterisk (*).

Full text of R-phrases mentioned in section 3:

R10	Flammable.
R11	Highly flammable.
R12	Extremely flammable.
R36	Irritating to eyes.
R36/38	Irritating to eyes and skin.
R38	Irritating to skin.
R41	Risk of serious damage to eyes.
R43	May cause sensitisation by skin contact.
R50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R51/53	Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R67	Vapours may cause drowsiness and dizziness.

Full text of H-phrases mentioned in section 3:

H220	Extremely flammable gas.
H225	Highly flammable liquid and vapour.
H226	Flammable liquid and vapour.
H280	Contains gas under pressure; may explode if heated.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H336	May cause drowsiness or dizziness.
H410	Very toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.

Full text of hazard classes mentioned in section 3:

Flam. Gas 1	: Flammable gas, category 1.
Press. Gas	: Compressed gas.
Flam. Liq. 2	: Flammable liquid, category 2.
Flam. Liq. 3	: Flammable liquid, hazard category 3.
Skin Irrit. 2	: Skin irritation, category 2.
Eye Dam. 1	: Serious eye damage, category 1.
Eye Irrit. 2	: Eye irritation, category 2.
Skin Sens. 1	: Skin sensitization, category 1.
STOT SE 3	: Specific target organ toxicity after single exposure, category 3.
Aquatic Chronic 1	: Hazardous to the aquatic environment — Chronic category 1.

MATERIAL SAFETY DATA SHEET

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Aquatic Chronic 3 : Hazardous to the aquatic environment — Chronic category 3.
Aquatic Acute 1 : Hazardous to the aquatic environment — Acute category 1.

List of abbreviations and acronyms that could be (but not necessarily are) used in this safety data sheet:

ADR : European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE : Acute Toxicity Estimate
CLP : Classification, Labeling & Packaging
CMR : Carcinogenic, Mutagenic or toxic for Reproduction
EEC : European Economic Community
IATA : International Air Transport Association
IBC code : International Bulk Chemical Code
IMDG : International Maritime Dangerous Goods Code
LD50/LC50 : Lethal Dose/Concentration for 50% of a population
MAC : Maximum Allowable Concentration
MARPOL : International Convention for the Prevention of Pollution From Ships
NO(A)EL : No Observed (Adverse) Effect Level
OECD : Organisation for Economic Co-operation and Development
PBT : Persistent, Bioaccumulative and Toxic
PC : Chemical product category
PT : Product type
REACH : Registration, Evaluation, Authorisation and Restriction of Chemicals
RID : Regulations concerning the International Carriage of Dangerous Goods by Rail
STP : Sewage Treatment Plant
SU : Sector of Use
TWA/STEL : Time-Weighted Average/Short Term Exposure Limit
UN : United Nations
VOC : Volatile Organic Compounds
vPvB : Very Persistent and Very Bioaccumulative

Number format : "," used as decimal separator.

History

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