



Safety Data Sheet

AC2239 Airco Refresh

Edition n. 02
Revision n.00
Date 29th July 2014

SECTION 1: Identification of the substance/mixture and the company/undertaking

1.1 Identification of the product

Product code AC2239
Product name Airco Refresh

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

Deodorant for cars and environments.
Industrial and professional use.

1.3 Details of the supplier of the safety data sheet

Company name Primalec
Address Green Farm, Maidstone Road
Nettlestead Green, Kent ME18 5HD
Telephone +44 01622 816955
Fax +44 01622 816110
E-mail address customers@primalec.co.uk

1.4 Emergency telephone number

+44 01622 816955 hours: 08:30-12:30 / 13:00-17:00

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

The product has been classified as hazard under 1272/2008 (CLP) EU Regulations (and subsequent amendments or additions). Therefore, it requires a safety data sheet according to the (EC) 1907/2006 Regulations and subsequent amendments.

2.1.1 Classification according to 1272/2008 [CLP] EU Regulations

Flammable Aerosol 1 H222
H229

2.1.2 Classification according to 1999/45/CE Directive

Extremely flammable (F+); R12

For the full text of the R-phrases: see Section 16

2.2 Label elements

Labelling of hazards in accordance with 1272/2008 (CLP) EU Regulation and subsequent amendments and additions.

Hazards pictograms:

Signal word:

Danger



Hazard statements:

H222 Extremely flammable aerosol
H229 Pressurized container: may burst if heated.

Precautionary statements:

P210 Keep away from heat / spark / open flames / hot surfaces. No smoking.
P211 Do not spray on an open flame or other ignition source.
P251 Pressurized container – Do not pierce or burn, even after use.
P410+P412 Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122 °F

2.3 Other hazards

None known

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SECTION 3: Composition/information on ingredients

3.1 Substances

Not applicable

3.2 Mixtures

Hazardous ingredients:

CAS Number	CE Number	Index Number	REACH Registration number	% [weight]	Name	Classification according to Regulation 67/548/CEE	Classification according to Regulation EU n. 1272/2008 (CLP)
75-28-5	200-857-2	601-004-00-0	01-2119485395-27-xxxx	> 90	isobutane	F+; R12	Flam. Gas 1; H220 Liquefied gas; H280
67-63-0	200-661-7	603-117-00-0	--	4 < C < 5	propan-2-ol	F; R11 R67 Xi; R36	Flam. Liquid 2; H225 Eye Irrit. 2; H319 STOT Single Exp. 3; H336
78-83-1	201-148-0	--	--	0.2 < C < 0.3	isobutyl alcohol	R10 R67 Xi; R41 Xi; R37/38	Flam. Liquid 3; H226 Skin Irrit. 2; H315 Eye Damage 1; H318 STOT Single Exp. 3; H335 STOT Single Exp. 3; H336
7173-51-5	230-525-2	612-131-00-6	--	0.1 < C < 0.2	chloride of didecyltrimethylammonium	C; R34 Xn; R22 N; R50	Skin Corr. 1B; H314 Acute Tox. 4; H302 Aquatic Acute 1; H400 (M=10)
76-22-2 *	200-945-0	--	--	< 0.01	bornan-2-one	F; R11 Xn; R68/22 Xn; R20/22	Flam. Sol. 1; H228 Acute Tox. 4; H302 Acute Tox. 4; H332 STOT SE 2; H371
5392-40-5 *	226-394-6	605-019-00-3	--	< 0.01	citral	Xi; R38 R43	Skin Irrit. 2; H315 Skin Sens. 1; H317
98-86-2 *	202-708-7	606-042-00-1	--	< 0.01	acetophenone	Xn; R22 Xi; R36	Acute Tox. 4; H302 Eye Irrit. 2; H319

* Substances with workplace exposure limits

For the full text of the H and R phrases: see SECTION 16

SECTION 4: First AID measures

4.1 Description of first aid measures

General information

Symptoms of a possible poisoning may appear after exposure.

Inhalation

Remove person to fresh air and keep patient warm and at rest. If signs/symptoms continue, get medical attention.

Skin contact

Remove contaminated clothing. Wash off with plenty of water. Get medical attention.

Wash clothing before reuse.

Eyes contact

Remove possible contact lens. Rinse thoroughly and immediately with plenty of water for at least 30 minutes also under the eyelids. Consult immediately a specialist.

Ingestion

If swallowed, rinse mouth with water. Do not induce vomiting unless told to do so by a Poison Centre or doctor. Get medical attention.

Self-protection of the first aider

See SECTION 8

4.2 Most important symptoms and effects, both Acute and delayed

Ingestion: may cause sore throat, abdominal pain, nausea and vomiting.

Inhalation: the exposure to high concentrations can cause headaches, dizziness, vertigo, nausea, vomiting, confusion and, in severe conditions, loss of consciousness.

Skin contact: may cause allergic reactions.

Eyes contact: may cause significant ocular lesions after contact.

4.3 Indication of immediate medical attention and special treatment needed, if necessary

Call 112 if you need immediate medical attention. Show the safety data sheet or the label of the product.

SECTION 5: Fire-fighting measures

5.1 Extinguishing media

Suitable Extinguishing Media

Extinguishing measures: carbon dioxide, foam, chemical powder (ABC). For leakage and spillage that have not caught fire, nebulized water may be used to disperse the flammable vapours and protect the people involved in stopping the leakage.

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Unsuitable extinguishing media

Do not use water jets. Water is not effective to extinguish the fire, nevertheless it can be used to cool closed containers exposed to flames to prevent bursts and explosions.

5.2 Special hazards arising from the substance or mixture

Aerosol containers exposed to fire heat may generate overpressure and explode. Wear full protective clothing, including helmet, and use caution in approaching fire. Avoid breathing products of combustion.

See SECTION 11 for toxicological information of the product and SECTION 10 for stability and reactivity.

5.3 Advice for fire fighters

General information

Use water to cool the containers to prevent product decomposition and the development of potentially hazardous substances for health. Always wear fire protective equipment and clothing. Collect extinguishing water, as it must not be discharged into sewers. Dispose of contaminated water used for extinguishing the fire and the residue according to the regulations.

Protective equipment

As in any fire, wear self-contained breathing apparatus (EN 137), full protective gear (EN 469), fire protective gloves (EN 659) and fire fighter boots (HO A29 or A30).

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Eliminate all sources of ignition (cigarettes, flames, sparks, etc...) or heat from the area in which the spill occurred. Keep unprotected persons away. Wear gloves / appropriate protective clothing / protect the eyes and the face.

6.2 Environmental precautions

Prevent product getting into sewers, surface water, ground water and confined areas.

6.3 Methods and materials for containment and cleaning up

Ensure adequate ventilation of the place affected by spillage.

Absorb spilled product with inert absorbent material. Collect the majority of material and deposit it in containers for disposal. Do not use sawdust or other combustible materials.

The disposal of contaminated material must be in accordance with paragraph 13.

6.4 Reference to other sections

See SECTION 8 for indications about personal protection.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Professional Uses (SU22)

Keep away from heat, sparks and open flames, do not smoke or use matchers or lighters. Vapours may accumulate and ignite, therefore keeping the windows and doors open and ensuring adequate ventilation. Do not eat, drink or smoke during use.

Consumers (SU21)

Avoid contact with eyes and skin.

Do not use in presence of children.

7.2 Conditions for safe storage, including any incompatibilities

Recommended storage temperature: 40 °C

Professional Uses (SU22)

Store the product away from the direct sun light. Store in a cool and well-ventilated place. Keep away from heat sources, open flames, sparks and other sources of ignition.

Consumers (SU21)

Keep away from reach of children.

Store in a cool and well ventilated place. Keep away from heat sources, open flames, sparks and other sources of ignition.

7.3 Specific end uses

Deodorant for cars and environments.

SECTION 8: Exposure controls/Personal protection

8.1 Control parameters

No exposure limit values available for the mixture.

Workplace exposure limit values for the substances contained:

SUSTANCE: isobutane (CAS 75-28-5)					
Country	LTEL - 8 hours		STEL – Short term		Note
	TWA ppm	TWA mg/m ³	STEL ppm	mg/m ³	
Belgium	1000				
Germany (AGS)	1000	2400	4000 ⁽¹⁾	9600 ⁽¹⁾	⁽¹⁾ 15 minutes average value
Germany (DFG)	1000	2400	4000	9600	STV 15 minutes average value
Switzerland	800				

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SUSTANCE: propan-2-ol (CAS 67-63-0)

Country	LTEL – 8 hours		STEL – Short term		Note
	TWA ppm	TWA mg/m ³	STEL ppm	STEL mg/m ³	
Australia	400	983	500	1230	
Austria	200	500	800	2000	
Belgium	200	500	400	1000	
Canada (Québec)	400	983	500	1230	
Denmark	200	490	400	980	
France			400	980	
Germany (AGS)	200	500	400	1000	
Germany (DFG)	200	500	400	1000	
Hungary		500		2000	
Ireland	200		400		
Japan	400				
Latvia		350		600	
New Zealand	400	983	500	1230	
Poland		900		1200	
Singapore	400	983	500	1230	
South Korea	200	480	400	980	
Spain	200	500	400	1000	
Sweden	150	350	250	600	
Switzerland	200	500	400	1000	
USA	400	980	500	1225	
United Kingdom	400	999	500	1250	

SUSTANCE: isobutyl alcohol (CAS 78-83-1)

Country	LTEL – 8 hours		STEL – Short term		Note
	TWA ppm	TWA mg/m ³	STEL ppm	STEL mg/m ³	
Austria	50	150	200	600	
Belgium	50	154			
Canada (Ontario)	50				
Canada (Québec)	50	152			
Denmark	50	150	50	150	
France	50	150			
Germany (AGS)	100	310	100 ⁽¹⁾	310 ⁽¹⁾	⁽¹⁾ 15 minutes average value
Germany (DFG)	100	310	100	310	
Ireland	50	150	75 ⁽¹⁾	225 ⁽¹⁾	⁽¹⁾ 15 minutes reference value
Japan	50				
Latvia		10			
New Zealand	50	152			
Poland		100		200	
Singapore	50	152			
South Korea	50	150			
Spain	50	154			
Sweden	50	150	75 ⁽¹⁾	250 ⁽¹⁾	⁽¹⁾ STEL - 15 minutes average value
Switzerland	50	150	50	150	
USA - NIOSH	50	150			
USA - OSHA	100	300			
United Kingdom	50	154	75	231	

SUSTANCE: bornan-2-one (CAS 76-22-2)

Country	LTEL – 8 hours		STEL – Short term		Note
	TWA ppm	TWA mg/m ³	STEL ppm	STEL mg/m ³	
Australia	2	12	3	19	
Austria	2	13			
Belgium	2	12	3	19	
Canada (Ontario)	2		3		
Canada (Québec)	2	12	3	19	
Denmark	2	12	4	24	
France	2	12			
Ireland	2	12	3 ⁽¹⁾	18 ⁽¹⁾	⁽¹⁾ 15 minutes reference value
Latvia		3			
New Zealand	2	12	3	19	
Poland		12		18	
Singapore	2	12	3	19	
South Korea	2	12	3	18	
Spain	2	13	3	19	
Switzerland	2	13			
USA - NIOSH		2			
USA - OSHA		2			
United Kingdom	2	13	3	19	

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SUBSTANCE: citral (CAS 5392-40-5)					
	LTEL – 8 hours		STEL – Short term		
Country	TWA ppm	TWA mg/m ³	STEL ppm	STEL mg/m ³	Note
Poland		27		54	
Spain	5				

SUBSTANCE: acetophenone (CAS 98-86-2)					
	LTEL – 8 hours		STEL – Short term		
Country	TWA ppm	TWA mg/m ³	STEL ppm	STEL mg/m ³	Note
Belgium	10	50			
Canada (Ontario)	10				
Canada (Québec)	10	49			
Denmark	10	49	20	98	
Hungary		50			
Ireland	10	49			
Latvia		5			
Poland		50		10	
Singapore	10	49			
Spain	10	50			

DNEL and PNEC values

SUBSTANCE NAME: propan-2-ol					CE Number: 200-661-7	CAS Number: 67-63-0		
DNEL								
Workers					Consumers			
Route of exposure	Acute local effects	Acute systemic effects	Chronic local effects	Chronic systemic effects	Acute local effects	Acute systemic effects	Chronic local effects	Chronic systemic effects
Oral	Not required							
Inhalational				500 mg/m ³				26 mg/kg bw/day
Dermic				888 mg/kg bw/day				89 mg/m ³
								319 mg/kg bw/day
PNEC								
Environmental protection objectives						PNEC	Value factor	
Fresh water						140.9 mg/L		
Fresh water sediment						552 mg/kg		
Marine water						140.9 mg/L		
Marine water sediment						552 mg/kg		
Food chain						160 mg/kg		
Microorganisms in wastewater treatment systems						2251 mg/L		
Soil (agricultural)						28 mg/kg		
Air								

SUBSTANCE NAME: isobutyl alcohol					CE Number: 201-148-0	CAS Number: 78-83-1		
DNEL								
Workers					Consumers			
Route of exposure	Acute local effects	Acute systemic effects	Chronic local effects	Chronic systemic effects	Acute local effects	Acute systemic effects	Chronic local effects	Chronic systemic effects
Oral	Not required							
Inhalational			310 mg/m ³			Non hazardous		Non hazardous
Dermic		Non hazardous		Non hazardous		Non hazardous	55 mg/m ³	Non hazardous
PNEC								
Environmental protection objectives						PNEC	Value factor	
Fresh water						0.4 mg/L	50	
Fresh water sediment						1.52 mg/kg		
Marine water						0.04 mg/L	500	
Marine water sediment						0.152 mg/kg		
Food chain								
Microorganisms in wastewater treatment systems						10 mg/L	10	
Soil (agricultural)						0.0699 mg/kg		
Air								

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SUBSTANCE NAME: chloride of didecyldimethylammonium					CE Number: 230-525-2	CAS Number: 7173-51-5		
DNEL								
Workers					Consumers			
Route of exposure	Acute local effects	Acute systemic effects	Chronic local effects	Chronic systemic effects	Acute local effects	Acute systemic effects	Chronic local effects	Chronic systemic effects
Oral	Not required						Non hazardous	Non hazardous
Inhalational				1.2 mg/m ³	Non hazardous	Non hazardous	Non hazardous	Non hazardous
Dermic	Medium hazardous	Non hazardous	Medium hazardous	8.6 mg/kg	Non hazardous	Non hazardous	Non hazardous	Non hazardous
PNEC								
Environmental protection objectives						PNEC	Value factor	
Fresh water						2 µg/L	10	
Fresh water sediment						2.82 mg/kg	10	
Marine water						0.2 µg/L	100	
Marine water sediment						0.28 mg/kg	10	
Food chain								
Microorganisms in wastewater treatment systems						0.595 mg/L	10	
Soil (agricultural)						1.4 mg/kg	50	
Air								

8.2 Exposure Controls

- 8.2.1 Since the use of adequate technical measures must always take priority over personal protection equipment, ensure good ventilation at the workplace through effective local extraction or stale air vents. When selecting personal protective equipment, if necessary, request advice from your chemicals supplier. The personal protective equipment must be labelled or marked CE and comply with the regulations in force.
- 8.2.2 Individual protection measures.
- Professional Uses (SU22)**
- Protection of the eyes/face: wear airtight goggles (ref. standard EN 166).
- Protection of the skin: wear long-sleeved work cloths and safety footwear for professional use in category II (ref. Directive 89/686/EEC and standard EN 344).
- Wash with soap and water after removing the protective clothing.
- Protection of the hands: protect your hands with category II work gloves (ref. Directive 89/686/EEC and standard EN 374).
- Respiratory protection: the event the threshold value (ex. TLV-TWA) of one or more of the substances present in the preparation is exceeded; wear a mask with type B or universal type filter.
- Consumers (SU21)**
- Protection of the eyes/face: no necessary.
- Protection of the skin: not necessary.
- Protection of the hands: in case of prolonged use of the product, we recommend the use of gloves.
- Respiratory protection: not necessary.
- 8.2.3 Environmental exposure controls
Ensure good ventilation.

SECTION 9: Physical and chemical properties

9.1 Information concerning the basic physical and chemical properties

- a) Physical state: pressurized liquefied gas, colourless.
- b) Odor: characteristic odor.
- c) Odor threshold: NA (not available).
- d) pH: NA (not available).
- e) Melting or freezing point: -159.4 °C (refer to isobutane)
- f) Starting boiling point or boiling range: -11.7 °C (refer to isobutane)
- g) Flammability point: -107 °C (refer to isobutane).
- h) Evaporation rate: NA (not available).
- i) Flammability (solids, gases): NA (not available).
- j) Upper/lower flammability or explosivity limit: 1.5 -8.5 % vol. (refer to isobutane)
- k) Vapour tension: 540 Pa (refer to isobutane)
- l) Vapour density: NA (not available).
- m) Relative density: 563 kg/m³ (refer to isobutane)
- n) Solubility/Solubilities: 53.5mg/l a 20°C (refer to isobutane).
- o) Partition coefficient: n-octanol/water:: log Pow 2.8 a 20 °C (refer to isobutane).
- p) Auto-ignition temperature: 460 °C (refer to isobutane) .
- q) Decomposition temperature: NA (not available).
- r) Viscosity: 8.3 µPa s a 27°C (refer to isobutane).
- s) Explosively properties: no danger of explosion.
- t) Oxidizing properties: not oxidizing.

9.2 Additional information

None additional information.

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SECTION 10: Stability and reactivity

10.1 Reactivity

There are no particular risks of reaction with other substances if handled or stored according to provisions in the SECTION 7.

10.2 Chemical stability

The product is stable in normal use and storage conditions.

10.3 Possibility of hazardous reactions

No hazardous reactions.

10.4 Conditions to avoid.

Do not expose to temperatures exceeding 40 °C/104 °F. Avoid any source of ignition.

10.5 Incompatible materials

Reactive and/or combustible agents. .

10.6 Hazardous decomposition products

In the event of fire, potentially dangerous gases and vapours to health may be released (CO_x, NO_x)

SECTION 11: Toxicological information

11.1 Information on toxicological effects

No values available for the mixture.

Values for the substances contained:

a) Acute toxicity

SUBSTANCE:	isobutane	propan-2-ol	isobutyl alcohol	chloride of didecyldimethylammonium
CAS Number	75-28-5	67-63-0	78-83-1	7173-51-5
Method (Type/Guidelines)	LC50	Acuteo standard / OECD 403	Acuteo standard	FDP / OECD 401
Species	rat	mouse	rat	mouse
Exposition type	Inhalation	Inhalation	Inhalation	Inhalation
Effect of dose	LC50	LC50	LC50	LD50
Duration of exposure	120 min	6 h	4 h	--
Results	1237 mg/L	> 10000 ppm	8000 ppm	329 mg/kg

b) Skin corrosion/irritation

SUBSTANCE:	isobutane	propan-2-ol	isobutyl alcohol	chloride of didecyldimethylammonium
CAS Number	75-28-5	67-63-0	78-83-1	7173-51-5
Results	Study technically not feasible	Not irritating	Irritating	Corrosive

c) Serious eye damage/eye irritation

SUBSTANCE:	isobutane	propan-2-ol	isobutyl alcohol	chloride of didecyldimethylammonium
CAS Number	75-28-5	67-63-0	78-83-1	7173-51-5
Results	Study technically not feasible	Causes serious eye irritation	Category 1 (irreversible effects on the eyes)	Irritating

d) Respiratory or skin sensitization

SUBSTANCE:	isobutane	propan-2-ol	isobutyl alcohol	chloride of didecyldimethylammonium
CAS Number	75-28-5	67-63-0	78-83-1	7173-51-5
Results	Not sensitizing	Not sensitizing	Not sensitizing	Not sensitizing

e) Mutagenicity of germ cells

SUBSTANCE:	isobutane	propan-2-ol	isobutyl alcohol	chloride of didecyldimethylammonium
CAS Number	75-28-5	67-63-0	78-83-1	7173-51-5
Results	In-vivo/in-vitro mutagenicity assays have been conducted and negative results being reported	In-vivo/in-vitro mutagenicity assays have been conducted and negative results being reported	So far, studies have shown no mutagenic potential.	

f) Carcinogenicity

SUBSTANCE:	isobutane	propan-2-ol	isobutyl alcohol	chloride of didecyldimethylammonium
CAS Number	75-28-5	67-63-0	78-83-1	7173-51-5
Results	Study scientifically not justified	There is evidence from epidemiological studies that exposure of humans during the production of isopropanol by the strong-acid process causes cancer of the nasal sinuses. It was allocated, by the International Agency for Research on Cancer (IARC), in the group 1 (carcinogenic to humans), based on sufficient evidence of carcinogenicity in humans and identifies the nasal cavity and paranasal sinuses such as target organs for which the evidence of carcinogenicity is certain.	So far, there are not sufficient studies to evaluate the carcinogenicity of the substance.	Non-carcinogenic

g) Toxicity for reproduction

SUBSTANCE:	isobutane	propan-2-ol	isobutyl alcohol	chloride of didecyldimethylammonium
CAS Number	75-28-5	67-63-0	78-83-1	7173-51-5

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Results	Reproductive toxicity: No human data available. There are no indications of any toxicity in terms of human reproduction. So far, studies in animals have not shown toxicity on reproductive function.	Reproductive toxicity: No human data available. There are no indications of any toxicity in terms of human reproduction. So far, studies in animals have not shown evidence of toxicity on reproductive function, if not at dose levels also toxic to the parent animals.	Reproductive toxicity: No human data available. There are no indications of any toxicity in terms of human reproduction. So far, studies in animals have not shown toxicity on reproductive function.	N.A.
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h) Specific target organ toxicity (STOT) - single exposure

SUBSTANCE:	isobutane	propan-2-ol	isobutyl alcohol	chloride of didecyldimethylammonium
CAS Number	75-28-5	67-63-0	78-83-1	7173-51-5
Results	N.A.	Causes respiratory system irritation. Inhalation of high vapour concentrations can cause CNS-depression and narcosis.	Irritating to the upper respiratory system. Causes CNS effects (including dizziness, drowsiness and headache).	N.A.

i) Specific target organ toxicity (STOT) – repeated exposure

SUBSTANCE:	isobutane	propan-2-ol	isobutyl alcohol	chloride of didecyldimethylammonium
CAS Number	75-28-5	67-63-0	78-83-1	7173-51-5
Results	N.A.	No experimental data in the public documents available or evidence based on practical experience*	The liquid defats the skin. Medium and long-term animal tests have shown some changes in hematic formula.	N.A.

j) Aspiration hazard

SUBSTANCE:	isobutane	propan-2-ol	isobutyl alcohol	chloride of didecyldimethylammonium
CAS Number	75-28-5	67-63-0	78-83-1	7173-51-5
Results	N.A.	No experimental data is available in the public documents available or evidence based on practical experience*	May cause lung damage if swallowed, from aspiration of the liquid into the lungs.	N.A.

SECTION 12: Ecological information

No ecological information available for the mixture.

Ecological information for the substances contained:

12.1 Toxicity

CAS Number	Name	Effects	Value	Type	Genus	
75-28-5	isobutane	Short term	CL50 (96 h)	147.54 mg/L	Daphnia	Fish
		Short term	CL50 (48 h)	69.43 mg/L		Crustaceans
67-63-0	propan-2-ol	Short term	CL50 (96 h)	4200 mg/L		Fish
			CL50 (48 h)	1400 mg/L		Crustaceans
		Long term	CL50 (7 days)	7060 mg/L		Fish
78-83-1	isobutyl alcohol	Short term	CL50 (96 h)	1430 mg/L	Pimephales promelas	Fish
			CE50 (48 h)	1100 mg/L	Daphnia pulex	Crustaceans
		Long term	NOEC (21 days)	20 mg/L	Daphnia magna	Crustaceans
7173-51-5	chloride of didecyldimethylammonium	Short term	CL50 (96h)	0.49 mg/L	Danio rerio	Fish
			CE50 (48 h)	0.029 mg/L	Daphnia magna	Crustaceans
		Long term	CE50 (21 days)	0.031 mg/L	Daphnia magna	Crustaceans

12.2 Persistence and degradability

CAS Number	Name	Degradability	Biodegradability	Note		
75-28-5	isobutane	DBO5 (g O ₂ /g)	--	Concentration (mg/L)	--	
		DQO	--	Period (days)	16	
		DBO5/DQO	--	% DBO degraded	100	
67-63-0	propan-2-ol	DBO5 (g O ₂ /g)	1.72	Concentration (mg/L)	-	
		COD (g O ₂ /g)	2.23	Period (days)	5	
		DBO5*100/COD	77	% DBO degraded	53	readily biodegradable
78-83-1	isobutyl alcohol	DBO5 (g O ₂ /g)	--	Concentration (mg/L)	--	
		DQO	--	Period (days)	28	
		DBO5*100/COD	--	% DBO degraded	80	readily biodegradable
7173-51-5	chloride of didecyldimethylammonium	DBO5 (g O ₂ /g)	--	Concentration (mg/L)	4	
		DQO	--	Period (days)	28	
		DBO5/DQO	--	% DBO degraded	69	readily biodegradable

12.3 Bioaccumulation potential

CAS Number	Name	Bioaccumulation potential	Note
75-28-5	isobutane	BCF	--
		Log POW	--
		Potential	--

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67-63-0	propan-2-ol	BCF	--	no data
		Log POW	--	no data
		Potential	--	
78-83-1	isobutyl alcohol	BCF	--	no data
		Log POW	--	
		Potential	--	
7173-51-5	chloride of didecylmethylammonium	BCF	2.1	
		Log POW	--	
		Potential	low	

12.4 Mobility in soil Conclusion, Surface Tension, arid soil, dry soil, moist soil

CAS Number	Name	Absorption / Desorption		Volatility		Note
75-28-5	isobutane	Koc	--	Henry	--	no data
		Conclusion	--	Arid/dry soil	--	
		Surface tension	--	Humid soil	--	
67-63-0	propan-2-ol	Koc	1.5	Henry	8,207E-1 Pa.m ³ /mol	
		Conclusion	Very high	Arid/dry soil	si	
		Surface tension	22400 N/m (25 °C)	Humid soil	si	
78-83-1	isobutyl alcohol	Koc	2.1	Henry	1.012 Pa m ³ /mol	25 °C
		Conclusion	--	Arid/dry soil	--	
		Tensione superf.	--	Humid soil	--	
7173-51-5	chloride of didecylmethylammonium	Koc	667 - 24.433	Henry	<8.4 x 10 ⁻¹² atm x m ³ /mol	
		Conclusion	Alto	Arid/dry soil	--	
		Surface tension	--	Humid soil	--	

12.5 Results of the PBT and vPvB assessment

According to current available data, this product does not contain any PBT or vPvB substances.

12.6 Other adverse effects

None adverse effects.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Disposal must be performed through an authorized waste management company, in compliance with national and local regulations.

Applicable CER code: 16 05 04*

SECTION 14: Transport information

14.1 UN Number

1950

14.2 UN proper shipping name

Flammable AEROSOL

14.3 Transport hazard class

2.1

14.4 Packing group

N.A.

14.5 Environmental hazards

No data available.

14.6 Special precautions for users

These goods must be packed in their original packaging. People loading and unloading dangerous goods must be trained on all the risks deriving from these substances and on all actions that must be taken in case of emergency situations.

14.7 Transport in bulk accordance with Annex II of MARPOL 73/78 and the IBC Code

No data available.

Important: The product packed in combination packaging is to be considered in exemptions related to Dangerous Goods Packed in Limited Quantities (Chapter 3.4 ADR)

SECTION 15: Regulatory information

15.1 Specific health, safety and environmental standards and legislation for the substance or mixture

Where applicable, refer to the following regulatory provisions:

Seveso Category: **8**

Restrictions relating to the product or the contained substances pursuant to Annex XVII Regulation (EC) No. 1907/2006: **none**

Substances in Candidate List (Art. 59 REACH): **none**

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Substances subject to authorization (Annex XIV REACH): none

Substances subject to the export notification procedure Regulation (EC) No. 649/2012: none

Substances subject to Rotterdam Convention: none

Substances subject to Stockholm Convention: none

Health controls:

Workers exposed to this chemical agent, hazardous to the health, must undergo health controls carried out in accordance with the provisions of art. 41 of Legislative Decree no. 81 of 9 April 2008 unless the risk to the safety and health of the worker is irrelevant been assessed, in accordance with art. 224 paragraph 2.

15.2 Chemical safety assessment

A chemical safety assessment for the mixture and the substances it contains has not been processed.

SECTION 16: Additional information

GENERAL BIBLIOGRAPHY:

The Merck Index. Ed. 10

Handling Chemical Safety

Niosh - Registry of Toxic Effects of Chemical Substances

INRS - Institut national de la recherche scientifique

Patty - Industrial Hygiene and Toxicology

N.I. Sax - Dangerous properties of Industrial Materials-7 Ed., 1989

Text of the hazard (H) indications mentioned in SECTION 2-3 of the sheet:

Aquatic Acute 1	Hazardous to the aquatic environment, acute toxicity, category 1
Acute Tox. 4	Acute toxicity, category 4
Eye Dam. 1	Serious eye damage, category 1
Eye Irrit. 2	Eye irritation, category 2
Flam. Gas 1	Flammable gas, category 1
Flam. Liq. 2	Flammable liquid, category 2
Flam. Liq. 3	Flammable liquid, category 3
Flam. Sol. 1.	Flammable solid, category 1
Liquefied gas	Liquefied gas
Skin Corr. 1B	Skin corrosion, category 1B
Skin Irrit. 2	Skin irritation, category 2
Skin Sens. 1	Skin sensitization, category 1
STOT SE 2	Specific target organ toxicity - single exposure, category 2
STOT SE 3	Specific target organ toxicity - single exposure, category 3
H220	High flammable gas.
H225	Highly flammable liquid and vapour.
H226	Flammable liquid and vapour.
H228	Flammable solid
H280	Contains gas under pressure; may explode if heated.
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.
H371	May cause damage to organs.
H400	Very toxic to aquatic life.

Text of the Risk (R) indications mentioned in SECTION 2-3 of the sheet:

R10	FLAMMABLE
R11	HIGHLY FLAMMABLE
R12	EXTREMELY FLAMMABLE
R20/22	HARMFUL BY INHALATION AND IF SWALLOWED
R22	HARMFUL IF SWALLOWED
R34	CAUSES BURNS
R36	IRRITATING TO EYES
R37/38	IRRITATING TO RESPIRATORY SYSTEM AND SKIN
R38	IRRITATING TO SKIN
R41	RISK OF SERIOUS DAMAGE TO EYE
R43	MAY CAUSE SENSITISATION BY SKIN CONTACT
R50	VERY TOXIC TO AQUATIC ORGANISM
R67	VAPOURS MAY CAUSE DROWSINESS AND DIZZINESS
R68/22	HARMFUL: POSSIBLE RISK OF IRREVERSIBLE EFFECTS IF SWALLOWED

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LEGEND:

ADR: European Agreement concerning the international carriage of dangerous goods by road

CAS NUMBER: Chemical Abstract Service number

CE50: Median effective concentration of substance (that causes 50% of the maximum response)

CE NUMBER: ESIS (European chemical substances information system) identification number

DNEL: Derived no effects levels

INDEX NUMBER: Identification number of the CLP - Annex VI

LC50: Lethal concentration – 50%

LD50: Lethal dose – 50%

OEL: Occupational exposure limits

PBT: Persistent, bioaccumulative and toxic, according to REACH

PEC: Predicted exposure concentration

PEL: Predicted exposure level

PNEC: Predicted no effect concentration

TLV: Threshold limit value

TLV CEILING: Threshold concentration in air that should not be exceeded during any part of the working exposure.

TWA STEL: Time-weighted average in short-term exposure limits

TWA: Time-weighted average

vPvB: Very persistent and very bioaccumulative, according to REACH