

# Firmenich

## Safety Data Sheet

According to Regulation (EC) No 1907/2006 (as amended)

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

### **1 IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING**

#### 1.1 Product identifier

**051736 AK**  
ARTIFICIAL APPLE FLAVOR  
© Firmenich product

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

Concentrated aromatic raw material.  
Not for personal use in this form or concentration.  
For manufacturing use only.

#### 1.3 Details of the supplier of the safety data sheet

**Colin McIntosh, PhD; Chemist**  
Firmenich Inc.  
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Princeton - New Jersey 08543 - USA  
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Tel.: +1.609.452.10.00 - Fax.: +1.609.275.72.38

#### 1.4 Emergency telephone number

FOR INFORMATION OR IN AN EMERGENCY CALL CHEMTREC @ 1-800-424-9300 or 1-703-527-3887.

### **2 HAZARDS IDENTIFICATION**

#### 2.1 Classification of the substance or mixture

##### 2.1.1 Classification according to Regulation (EC) N° 1272/2008 [CLP/GHS]

Flammable Liquid - Cat. 3	H226
Skin Irritation - Cat. 2	H315
Skin Sensitization - Cat. 1	H317
Eye Damage - Cat. 1	H318
Acute Toxicity (inhalation) - Cat. 4	H332
Specific Target Organ Toxicity - Single Exposure - Cat. 3 Respiratory Irritation	H335
Carcinogenicity - Cat. 2	H351
WARNING: CONTAINS VOLATILE FLAVORING CHEMICALS; BREATHING THESE CHEMICALS IN THE WORKPLACE MAY LEAD TO SEVERE LUNG DAMAGE.	USH99 7

##### 2.1.2 Classification according to 67/548/EEC or 1999/45/EC

#### **Symbols:**

	Flammable
Xn	Harmful

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### Risks Phrases:

R10	Flammable.
R20	Harmful by inhalation.
R36/37	Irritating to eyes and respiratory system.
R40	Limited evidence of a carcinogenic effect.
R43	May cause sensitization by skin contact.
R67	Vapours may cause drowsiness and dizziness.

### 2.1.3 Additional information

Full text of R- and S-phrases: see section 16

### 2.2 Label elements

#### Hazard pictograms:



#### Signal Word:

Danger

#### Hazard Statements:

H318	Causes serious eye damage.
H226	Flammable liquid and vapour.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H351	Suspected of causing cancer.

#### Precautionary Statements:

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P210	Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P235	Keep cool.
P240	Ground/bond container and receiving equipment.
P241	Use rated explosion-proof electrical equipment.

#### Hazard Inducers:

Ethyl Acetate  
Isopentyl Acetate  
Iso-Butanol  
Propionic Acid

### 2.3 Other hazards

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### **3 COMPOSITION/INFORMATION ON INGREDIENTS**

Mixture of aromatic substances.

#### Contains :

20.0 - 30.0%	1-Butanol, 3-methyl- N° CAS : 0000123-51-3 / N° EINECS: 204-633-5 Classification: Xn - R37,R20,R10 GHS Classification: Acute Toxicity (inhalation) - Cat. 4 Specific Target Organ Toxicity - Single Exposure - Cat. 3 Respiratory Irritation
15.0 - 20.0%	ethyl acetate N° CAS : 0000141-78-6 / N° EINECS: 205-500-4 Classification: F Xi - R36,R67,R66,R11 GHS Classification: Eye Irritation - Cat.2 Specific Target Organ Toxicity - Single Exposure - Cat. 3 Narcotic Effects
15.0 - 20.0%	hexan-1-ol N° CAS : 0000111-27-3 / N° EINECS: 203-852-3 Classification: Xn - R22 GHS Classification: Acute Toxicity (oral) - Cat. 4
2.5 - 5.0%	Hexanal N° CAS : 0000066-25-1 / N° EINECS: 200-624-5 Classification: Xi - R36,R10 GHS Classification: Eye Irritation - Cat.2
2.5 - 5.0%	iso-butanol N° CAS : 0000078-83-1 / N° EINECS: 201-148-0 Classification: Xi - R37/38,R41,R67,R10 GHS Classification: Eye Damage - Cat.1 Skin Irritation - Cat. 2 Specific Target Organ Toxicity - Single Exposure - Cat. 3 Narcotic Effects Specific Target Organ Toxicity - Single Exposure - Cat. 3 Respiratory Irritation
1.0 - 2.5%	propionic acid N° CAS : 0000079-09-4 / N° EINECS: 201-176-3 Classification: C - R34 GHS Classification: Eye Damage - Cat.1 Skin Corrosion - Cat. 1B

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1.0 - 2.5%	Acetaldehyde N° CAS : 0000075-07-0 / N° EINECS: 200-836-8 Classification: F+ Xn - R36/37,R12,R40 GHS Classification: Eye Irritation - Cat.2 Specific Target Organ Toxicity - Single Exposure - Cat. 3 Respiratory Irritation Carcinogenicity - Cat. 2
1.0 - 2.5%	Benzaldehyde, 4-hydroxy-3-methoxy- N° CAS : 0000121-33-5 / N° EINECS: 204-465-2 Classification: Xi - R43 GHS Classification: Skin Sensitization - Cat. 1
1.0 - 2.5%	butyric acid N° CAS : 0000107-92-6 / N° EINECS: 203-532-3 Classification: C - R34 GHS Classification: Eye Damage - Cat.1 Skin Corrosion - Cat. 1B
1.0 - 2.5%	Hexanoic acid N° CAS : 0000142-62-1 / N° EINECS: 205-550-7 Classification: C - R34 GHS Classification: Acute Toxicity (dermal) - Cat. 3 Eye Damage - Cat.1 Skin Corrosion - Cat. 1C
1.0 - 2.5%	Butanoic acid, 3-methyl-, ethyl ester N° CAS : 0000108-64-5 / N° EINECS: 203-602-3 Classification: Xi - R38,R10 GHS Classification: Skin Irritation - Cat. 2
0.5 - 1.0%	2(3H)-Furanone, 5-heptyldihydro- N° CAS : 0000104-67-6 / N° EINECS: 203-225-4 Classification: N - R51/53 GHS Classification: -

## 4 FIRST-AID MEASURES

### 4.1 Description of first aid measures

General information:

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

In case of eye contact:

In the event of contact with the eyes, irrigate with water for at least 15 minutes; obtain medical advice if irritation persists.

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In case of inhalation:

In the event of exposure to vapors, immediately remove from the area to a fresh air environment.  
Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult or labored, give oxygen by qualified personnel. Call for emergency response team.

In case of skin contact:

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

In case of ingestion:

In the event of accidental ingestion, rinse mouth with water. Give up to one tumbler (half pint) of milk or water.  
Obtain medical advice immediately.  
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 itself.

#### 4.3 Indication of immediate medical attention and special treatment needed

None known.

### **5 FIRE-FIGHTING MEASURES**

#### 5.1 Extinguishing media

In the event of fire, adequate extinguishers should be used. Avoid inhalation of smoke and fumes. In case of insufficient ventilation, wear suitable respiratory equipment.  
Cool fire exposed containers with water spray.  
Extinguishing media: Foam, carbon dioxide or dry chemical.

#### 5.2 Special hazard arising from the substance or mixture

Closed containers may build up pressure if exposed to heat (fire). Vapors form explosive mixtures with air and may travel to a source of ignition and flash back.

#### 5.3 Advice for fire-fighters

No specific advice.

### **6 ACCIDENTAL RELEASE MEASURES**

#### 6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel:  
Adequate protective gloves should be worn when handling spillages. No smoking. Avoid naked flames or other potential sources of ignition (eg. electrical equipment).  
Avoid skin contamination and inhalation of vapour.  
Individual washing routines should be followed after any potential contact.  
Ensure adequate ventilation in working areas following accidental releases.

For emergency personnel:  
Apply the same recommendations as section 6.1

#### 6.2 Environmental precautions

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

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### 6.3 Methods and material for containment and cleaning up

For containment:

Eliminate all sources of ignition. Leaking containers should be removed to a well ventilated area if possible to do safely. If not, dike around container to limit spread of spill, leak. If spill/leak is small, clean up with standard absorbents (sand, vermiculite, etc.). Wear rubber gloves. Avoid contact with skin. If skin contact occurs, wash liberally with soap and water. See Section VI above. If large leak/spill, call HAZMAT Team.  
Vapors may cause vomiting and nausea. Wear appropriate respiratory protection.

For cleaning-up:

Spillages should be disposed of in accordance with Governmental Regulations.

## **7 HANDLING AND STORAGE**

### 7.1 Precautions for safe handling

Avoid contact with skin and eyes.

Wear adequate protective gloves protection and eye/face protection.

No smoking. Avoid any sources of ignition.

Avoid exposing to high temperature during processing.

Do not ingest or apply to the skin as such. Good personal washing routines should be followed.

Maintain adequate local and general ventilation where product is handled.

### 7.1.1 Protective measures

Keep strict control of dust accumulation to a minimum. Maintain adequate local and general ventilation where product is handled. Avoid any sources of ignition.

### 7.1.2 Advice on general occupational hygiene

Good personal washing routines should be followed.

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

It is good general practice to store in closed, preferably full, containers away from heat sources, and protected from extremes of temperature. Do not re-use the empty container.

Respect general rules for compatibility storage.

### 7.3 Specific end use(s)

Not available at this time.

## **8 EXPOSURE CONTROLS/PERSONAL PROTECTION**

### 8.1 Control parameters

0000141-78-6 : ETHYL ACETATE (All forms)

NIOSH Recommended Exposure Limits (1994-JUN)

TWA (1994-JUN) : 400 ppm, 10 hours (All forms)

TWA (1994-JUN) : 1400 mg/m<sup>3</sup>, 10 hours (All forms)

0000141-78-6 : Ethyl acetate (All forms)

ACGIH Threshold Limit Values (1996-MAY)

TWA (1996-MAY) : 400 ppm, 8 hours (All forms)

TWA (1996-MAY) : 1440 mg/m<sup>3</sup>, 8 hours (All forms)

0000141-78-6 : Ethyl acetate (All forms)

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### OSHA Permissible Exposure Limits (1989-MAR)

TWA (1989-MAR) : 400 ppm , 8 hours (All forms)

TWA (1989-MAR) : 1400 mg/m<sup>3</sup> , 8 hours (All forms)

### 0000141-78-6 : Ethyl acetate (All forms)

### OSHA Permissible Exposure Limits, Table Z-1 Limits for Air Contaminants (1993-JUN)

TWA (1993-JUN) : 400 ppm , 8 hours (All forms)

TWA (1993-JUN) : 1400 mg/m<sup>3</sup> , 8 hours (All forms)

### 0000123-51-3 : ISOAMYL ALCOHOL (PRIMARY) (All forms)

### NIOSH Recommended Exposure Limits (1994-JUN)

STEL (1994-JUN) : 125 ppm , 15 minutes (All forms)

STEL (1994-JUN) : 450 mg/m<sup>3</sup> , 15 minutes (All forms)

TWA (1994-JUN) : 100 ppm , 10 hours (All forms)

TWA (1994-JUN) : 360 mg/m<sup>3</sup> , 10 hours (All forms)

### 0000078-83-1 : ISOBUTYL ALCOHOL (All forms)

### NIOSH Recommended Exposure Limits (1994-JUN)

TWA (1994-JUN) : 50 ppm , 10 hours (All forms)

TWA (1994-JUN) : 150 mg/m<sup>3</sup> , 10 hours (All forms)

### 0000123-51-3 : Isoamyl alcohol (All forms)

### ACGIH Threshold Limit Values (1994-SEP)

STEL (1994-SEP) : 125 ppm , 15 minutes (All forms)

STEL (1994-SEP) : 452 mg/m<sup>3</sup> , 15 minutes (All forms)

TWA (1994-SEP) : 100 ppm , 8 hours (All forms)

TWA (1994-SEP) : 361 mg/m<sup>3</sup> , 8 hours (All forms)

### 0000123-51-3 : Isoamyl alcohol (primary and secondary) (All forms)

### OSHA Permissible Exposure Limits (1989-MAR)

STEL (1989-MAR) : 125 ppm , 15 minutes (All forms)

STEL (1989-MAR) : 450 mg/m<sup>3</sup> , 15 minutes (All forms)

TWA (1989-MAR) : 100 ppm , 8 hours (All forms)

TWA (1989-MAR) : 360 mg/m<sup>3</sup> , 8 hours (All forms)

### 0000078-83-1 : Isobutyl alcohol (All forms)

### ACGIH Threshold Limit Values (1994-SEP)

TWA (1994-SEP) : 50 ppm , 8 hours (All forms)

TWA (1994-SEP) : 152 mg/m<sup>3</sup> , 8 hours (All forms)

### 0000078-83-1 : Isobutyl alcohol (All forms)

### OSHA Permissible Exposure Limits (1989-MAR)

TWA (1989-MAR) : 50 ppm , 8 hours (All forms)

TWA (1989-MAR) : 150 mg/m<sup>3</sup> , 8 hours (All forms)

### 0000078-83-1 : Isobutyl alcohol (All forms)

### OSHA Permissible Exposure Limits, Table Z-1 Limits for Air Contaminants (1993-JUN)

TWA (1993-JUN) : 100 ppm , 8 hours (All forms)

TWA (1993-JUN) : 300 mg/m<sup>3</sup> , 8 hours (All forms)

### 0000123-51-3 : Isomyl alcohol (primary and secondary) (All forms)

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### OSHA Permissible Exposure Limits, Table Z-1 Limits for Air Contaminants (1993-JUN)

TWA (1993-JUN) : 100 ppm , 8 hours (All forms)  
TWA (1993-JUN) : 360 mg/m<sup>3</sup> , 8 hours (All forms)

### 0000079-09-4 : PROPIONIC ACID (All forms)

NIOSH Recommended Exposure Limits (1994-JUN)  
STEL (1994-JUN) : 15 ppm , 15 minutes (All forms)  
STEL (1994-JUN) : 45 mg/m<sup>3</sup> , 15 minutes (All forms)  
TWA (1994-JUN) : 10 ppm , 10 hours (All forms)  
TWA (1994-JUN) : 30 mg/m<sup>3</sup> , 10 hours (All forms)

### 0000079-09-4 : Propionic acid (All forms)

ACGIH Threshold Limit Values (1994-SEP)  
TWA (1994-SEP) : 10 ppm , 8 hours (All forms)  
TWA (1994-SEP) : 30 mg/m<sup>3</sup> , 8 hours (All forms)

### 0000079-09-4 : Propionic acid (All forms)

OSHA Permissible Exposure Limits (1989-MAR)  
TWA (1989-MAR) : 10 ppm , 8 hours (All forms)  
TWA (1989-MAR) : 30 mg/m<sup>3</sup> , 8 hours (All forms)

## 8.2 Exposure controls

Avoid exposing to high temperature during processing.  
Maintain adequate local and general ventilation where product is handled.

### 8.2.1 Appropriate engineering controls

Maintain adequate local and general ventilation where product is handled and dispensed.

### 8.2.2 Environmental exposure controls

Not available at this time. Minimize release to the environment.

## 8.3 Personal protection

Respiratory protection: Breathing of the vapors or dust particles may be hazardous. In the absence of appropriate engineering controls such as spot ventilation, ventilated enclosures, etc., workers should avail themselves of the appropriate NIOSH approved respiratory protection.

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.

## 9 PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on basic physical and chemical properties

Appearance :	LIQUID
Colour :	COLOURLESS TO PALE YELLOW
Odour :	Characteristic strong odour according to the commercial description of the substance.



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pH :	Not available
Melting point/range (°C) :	Not available
Initial boiling point/range (°C) :	Not available
Flash point (closed cup) :	= 73 Fahrenheit (= 23 Centigrade)
Evaporation rate :	Not available
Flammability (solid/gas) :	Not available
Upper/lower flammability or explosive limits :	Not available
Vapor pressure (At 20°C in mm Hg ) :	
Calculated vapor pressure (At 20°C in mm Hg):	88.4
Vapour density :	Not available
Relative density (d 20/20) :	0.856 - 0.876
Water solubility (20°C) :	Not applicable
Partition coef. (n-octanol/water) :	Not applicable
Auto-ignition temperature (°C):	Not available
Decomposition temperature :	Not available
Viscosity :	Not available
Explosive properties :	Not available
Oxidizing properties :	Not available
VOC Content less than:	97%

## **10 STABILITY AND REACTIVITY**

### 10.1 Reactivity

No reaction known with water.

### 10.2 Chemical stability

Presents no significant reactivity hazard. Normally stable even at elevated temperatures and pressures. Avoid temperatures above or near to the flash point. Not pyrophoric nor reactive with water. Does not undergo explosive decomposition, is shock stable, and is not an oxygen donor. Does not form explosive mixtures with other organic materials. Will not undergo hazardous exothermic polymerization.

### 10.3 Possibility of hazardous reactions

Not known.

### 10.4 Conditions to avoid

Avoid temperatures above or at least 5 °C below flash point for any flammable liquids.  
Do not heat closed containers.  
Avoid contact with oxidizing agents.

### 10.5 Incompatible materials

Avoid strong oxidizing agents.

### 10.6 Hazardous decomposition products

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

## **11 TOXICOLOGICAL INFORMATION**

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This preparation has not been subjected to toxicological testing as an entity but has been blended from materials with established toxicological bibliographies. In view of the difficulty of using current standard toxicological evaluation techniques to predict potential hazards to susceptible individuals or arising from unforeseeable potentiation, this preparation should be considered and handled as if it displayed health hazards and treated in consequence with all possible precaution.

### **12 ECOLOGICAL INFORMATION**

This preparation has not been subjected to ecotoxicological testing as an entity. In view of the difficulty of using current standard ecotoxicological evaluation techniques to predict the impact of particular modes of release on vulnerable or localised 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.

### **13 DISPOSAL CONSIDERATIONS**

Empty all containers using a two stage pumping system or draining until no free liquid remains  
Minimize release to the environment.

### **14 TRANSPORT INFORMATION**

In case of accidental spillage or fire during transport, refer to instructions given under points 5, 6, 7 and 8 above.

#### **14.1 UNO**

UN-No: 1197  
Proper Shipping Name: EXTRACTS, FLAVOURING, LIQUID  
Class: 3  
Packing Group: III

#### **14.2 Land transport (ADR/RID)**

UN-No: 1197  
Proper Shipping Name: EXTRACTS, FLAVOURING, LIQUID  
Class: 3  
Packing group: III

#### **14.3 Sea transport (IMDG-Code)**

UN-No: 1197  
Proper Shipping Name: EXTRACTS, FLAVOURING, LIQUID  
Class: 3  
Packing group: III

#### **14.4 Air transport (ICAO-IATA)**

UN-No: 1197  
Proper Shipping Name: EXTRACTS, FLAVOURING, LIQUID  
Class: 3  
Packing group: III

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### 15 REGULATORY INFORMATION

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

##### NFPA Hazard Classification

Health: 2  
Flammability: 3  
Reactivity: 0

This mixture contains a 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 1910.1200.

2.8% Acetaldehyde,  
CAS# 75-07-0,

#### 15.2 Chemical Safety Assessment

No data available at this time.

### 16 OTHER INFORMATION

#### 16.1 Revisions

01-Dec-2010: Version 1.0 - First version validated for publication

#### 16.2 Key literature references

RIFM database  
OECD SIDS  
EU IUCLID  
Supplier information

#### 16.3 Risk & Safety Phrases used under section 2

R10	Flammable.
R20	Harmful by inhalation.
R36/37	Irritating to eyes and respiratory system.
R40	Limited evidence of a carcinogenic effect.
R43	May cause sensitization by skin contact.
R67	Vapours may cause drowsiness and dizziness.
S16	Keep away from sources of ignition - No smoking.
S23	Do not breathe vapour.
S24/25	Avoid contact with skin and eyes.
S26	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S36/37	Wear suitable protective clothing and gloves.
S38	In case of insufficient ventilation, wear suitable respiratory equipment.
P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P210	Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P235	Keep cool.

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P240	Ground/bond container and receiving equipment.
P241	Use rated explosion-proof electrical equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P261	Avoid breathing dust/fume/gas/mist/vapours/spray.
P264	Wash thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P272	Contaminated work clothing should not be allowed out of the workplace.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P281	Use personal protective equipment as required.
P302+P352	IF ON SKIN: Wash with plenty of soap and water.
P303+P361+P353	IF ON SKIN (or hair): Remove immediately all contaminated clothing. Rinse skin with water/shower.
P304+P312	IF INHALED: Call a POISON CENTER or doctor/ physician if you feel unwell.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308+P313	IF exposed or concerned: Get medical advice/attention.
P310	Immediately call a POISON CENTER or doctor/physician.
P333	If skin irritation or rash occurs:
P340	Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P362	Take off contaminated clothing and wash before reuse.
P363	Wash contaminated clothing before reuse.
P370+P378	In case of fire: Use appropriate fire extinguishers for fire control.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.

### 16.4 Risk Phrases used under section 3

R10	Flammable.
R11	Highly flammable.
R12	Extremely flammable.
R20	Harmful by inhalation.
R22	Harmful if swallowed.
R34	Causes burns.
R36	Irritating to eyes.
R36/37	Irritating to eyes and respiratory system.
R37	Irritating to respiratory system.
R37/38	Irritating to respiratory system and skin.
R38	Irritating to skin.
R40	Limited evidence of a carcinogenic effect.
R41	Risk of serious damage to eyes.
R43	May cause sensitization by skin contact.
R51/53	Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R66	Repeated exposure may cause skin dryness or cracking.
R67	Vapours may cause drowsiness and dizziness.

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**We believe that the information contained herein is current as of the date of this Safety Data Sheet. Since the use of this information and the conditions of use of the product are not within the control of Firmenich, it is the user's obligation to determine conditions of safe use of the product.**

**Information contained in this document and related material is proprietary to Firmenich. Disclosure to third parties without the prior written consent of Firmenich except where required by applicable laws and regulations and/or reverse engineering are strictly prohibited.**