

# Fragrance Ingredients Sustainability Profile



Givaudan  
Human by nature

# Fragrance Ingredients Sustainability Profile

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# Sustainability Parameters

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## RENEWABLE CARBON

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**Renewable carbon comes from natural sources that can be replenished in a short time frame, e.g. plants, bio-mass, or from recycling.**

- The renewable carbon of an ingredient is assessed based on the chemical and/or biological process(es) used to make the ingredient and the origin of the starting raw materials that in some way form part of the ingredient's carbon skeleton. The number of carbon atoms that are from a natural origin (e.g. botanical) is expressed as a percentage of the total number of carbon atoms in the ingredient molecule. Givaudan defines naturally derived substances as those composed of >50% renewable carbon. This is in line with ISO 16128-1.
- Dilutions: calculated based on data for the individual ingredient and solvent. It is the sum of the relative concentration of an ingredient and solvent multiplied by their corresponding renewable carbon content. This is in line with ISO 16128-2.

-  100% renewable carbon
-  >50% renewable carbon
-  ≤50% renewable carbon



## BIODEGRADABILITY

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**This is the breakdown of organic matter by micro-organisms, such as bacteria and fungi. Key removal process of organic chemicals in the environment.**

- Biodegradation is determined according to OECD test method guidelines. A readily biodegradable material has achieved >60% in a ready biodegradation test within 28 days and passing the 10 day window criterion following OECD 301, 310 and equivalent ISO guidelines. An inherently biodegradable material has achieved >60% in a ready biodegradation test within 28 days but failed the 10 day window or has achieved >60% in a ready test that has been extended beyond 28 days or has achieved >70% in an inherent biodegradability test e.g. OECD 302C test.
- Dilutions: assessed based on data for the individual ingredient and solvent, applying the worst case.

-  Readily biodegradable
-  Inherently biodegradable
-  Non-biodegradable

# Sustainability Parameters

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## ECOTOXICITY

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**This is a measure of the intrinsic toxicity of the ingredient to aquatic species.**

- Internationally recognised testing guidelines (e.g. OECD) were applied, performed to Good Laboratory Practice standards. Our materials have been classified as non-hazardous, harmful (Acute 2, 3, Chronic 3, 4), or toxic (Acute 1, Chronic 1, 2). The environmental hazard categories (Acute 1, 2, and Chronic 1, 2, 3, 4) are based on the Globally Harmonized System of Classification (GHS).
- Dilutions: evaluated as pure material.



Non-hazardous



Harmful



Toxic



## WASTE

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**This indicates the amount of waste generated while manufacturing the ingredient.**

- This is a comparison between the Process Mass Intensity (PMI) of the ingredient and the expected value for a product of a similar tonnage. (Process Mass Intensity is the total mass of materials needed to make a set quantity of product). This assessment is based solely on activity that takes place within Givaudan (suppliers and contractors are not covered).
- Dilutions: evaluated as diluted material.



Exceeds expectations



Meets expectations



Does not meet expectations



## CHEMISTRY

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**This determines if the process uses chemistry that is environmentally disfavoured.**

- A list of disfavoured chemistries was prepared based on ISO 16128 and customer feedback. This parameter indicates if any of the chemistry used to make the ingredient is on this list: short chain alkyl halides or alkyl sulphates (<5 carbons), isocyanates, nitration, alkyl chlorination, sulphonation, silylation, ethylene oxide, phosphorous oxychloride, or stoichiometric transition metals. This assessment is based solely on activity that takes place within Givaudan (suppliers and contractors are not covered).
- Dilutions: evaluated as pure material.



Not on the disfavoured list



On the disfavoured list

# Sustainability Parameters

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## SOLVENTS USED

**This is an assessment of the environmental impact of the solvents used in the process.**

- Solvents are categorized as either favoured, standard or disfavoured. Favoured solvents are listed in the ISO 16128 standard. Disfavoured solvents are those requiring Authorisation under REACH (or going through the process to be Authorised). If a solvent does not fall into either category, it is treated as “standard”. The category is determined by the least favoured solvent used in the process. This assessment is based solely on activity that takes place within Givaudan (suppliers and contractors are not covered).
- Dilutions: evaluated as diluted material.



Favoured solvents



Standard solvents



Disfavoured solvents



## PROCESS COMPLEXITY

**This measures the number of steps in the chemical process.**

- A simple process has 1 chemical step, standard process has 2-3 chemical steps and a complex process 4 or more. This assessment is based solely on activity that takes place within Givaudan (suppliers and contractors are not covered).
- Dilutions: evaluated as pure material.



Simple



Standard



Complex



## OLFACTIVE IMPACT

**This is based on odour value as measured by Givaudan as a combination of Odour Detection Threshold and Vapour Pressure.**

- Dilutions: evaluated as pure material.



High impact



Significant impact



Impactful

# Sustainability Parameters

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## SOCIAL RESPONSIBILITY

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**This refers to the SMETA or equivalent protocol for our manufacturing sites.**

- The SMETA methodology assesses a manufacturing site based on leading international standards around labour, health and safety, environment and business ethics aspects. To demonstrate our efforts and progress on these conventions and principles, we participate in Supplier Ethical Data Exchange (Sedex) forum and follow its Sedex Members Ethical Trade Audit (SMETA) assessment programme which has been in place at Givaudan since 2008.



Audited with full compliance



Audited with open points



Not audited yet

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The information contained herein is, to the best of Givaudan's knowledge, true and accurate at the time it is given. It is provided to Customer for its information and internal use only. Givaudan is not liable for any damages that may result from the misuse of the data. Data valid as at March 2024.

# Fragrance Ingredients

Code	Product	        									
		Renewable Carbon	Biodegradability	Ecotoxicity	Waste	Chemistry	Solvents Used	Process Complexity	Olfactive Impact	Social Responsibility	
0073003	Acetal CD										
0087001	Acetal E										
0420003	Acetate C 9 Nonylic										
1028001	Adoxal										
1141003	Alcohol C 11 Undecylenic										
1560803	Aldehyde Iso C 11										
8755303	Amberketal IPM										
1472033	Ambermax™ 10%/TEC										
1472023	Ambermax™ 50%/Dowanol TPM										
1832003	Ambrettolide										
1836803	Ambrofix <sup>*</sup>										
1486273	Ambrofix Flakes										
8810001	Amyl Salicylate										
1884001	Amyl Vinyl Carbinol										
5846393	Anther										
2365901	Aurantiol™ Pure										
7043003	Azarbre										
8429001	Benzyl Propionate										
8813001	Benzyl Salicylate										
5206903	Berryflor™										
2751503	Bisabolene										
2786903	Boisiris™										
2837903	Bourgeonal										

\*Produced using biotechnology

# Fragrance Ingredients

Code	Product	 Renewable Carbon	 Biodegradability	 Ecotoxicity	 Waste	 Chemistry	 Solvents Used	 Process Complexity	 Olfactive Impact	 Social Responsibility
3491103	Celery Ketone									
7225001	Cervolide									
3507501	Cetonal™									
3519003	Cetone V									
5847673	Citrathal™ Conc S									
5847683	Citrathal™ Concentrate S TW									
5847663	Citrathal™ Tech									
0015173	Cosmone™									
4198003	Creosol									
4223103	Cumin Nitrile									
1515001	Cuminic Aldehyde									
1534001	Cyclamen Aldehyde Extra									
8819601	Cyclohexyl Salicylate									
4356101	Decatone									
4357003	Decenal-4-Trans									
4485103	Dihydro Ambrate									
4508403	Dihydro Ionone Beta									
4591003	Dimethyl Octenone									
4609001	Dimetol™									
4685003	Dupical									
4697403	Ebanol™									
5845123	Elintaal									
4349403	Ethyl Decadienoate									

# Fragrance Ingredients

Code	Product	        									
		Renewable Carbon	Biodegradability	Ecotoxicity	Waste	Chemistry	Solvents Used	Process Complexity	Olfactive Impact	Social Responsibility	
8802603	Ethyl Safranate										
8754243	Florhydral™										
8467001	Florocyclene										
5083303	Florosa										
5093003	Folione										
5202703	Freskomenthe™										
1461553	Frutonile										
1390623	Gardamide										
5361601	Gardocyclene										
5464203	Geranodyle										
5542803	Givescone™										
5631203	Glycolieral										
5653603	Gyrane										
1678001	Heptone										
0025743	Herbanate										
5698353	Herboxane										
0335001	Hexyl Acetate										
8826001	Hexyl Salicylate										
5979201	Indolene 50%/CSO										
6041001	Irisone™ Pure										
6065003	Irone Alpha										
1465543	Isobutavan										
6249003	Isojasmone B 11										

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Code	Product	 Renewable Carbon	 Biodegradability	 Ecotoxicity	 Waste	 Chemistry	 Solvents Used	 Process Complexity	 Olfactive Impact	 Social Responsibility
5850143	Isolongifolanone									
6253503	Isomenthone DL									
6281753	Isoraldeine™ 95									
0513501	Jasmacyclene									
5850253	Jasmatone									
6472003	Jasmin Lactone Delta									
6340001	Jasme Cis									
6346803	Jasmonyli™									
6347001	Jasmonyli™ LG									
6322401	Jasmpyrane									
6347541	Jasmpyrane Forte									
8754013	Javanol™									
1493163	Javanol™ Super									
6378003	Kephalis									
0017643	Labienoxime 10%/IPM-TEC									
6570203	Lemonile™									
5845733	Levistamel 25%/TEC									
7852493	Lime Oxide									
4523001	Limetol									
7852501	Linalool Oxide									
2597001	Linalyl Benzoate									
3910003	Linalyl Cinnamate									
5150501	Linalyl Formate									

# Fragrance Ingredients

Code	Product	 Renewable Carbon	 Biodegradability	 Ecotoxicity	 Waste	 Chemistry	 Solvents Used	 Process Complexity	 Olfactive Impact	 Social Responsibility
6170501	Linalyl Isobutyrate									
8448751	Linalyl Propionate									
6576003	Maceal									
6655003	Madrox™									
6746001	Melonal									
6846003	Metambrate									
6906203	Methyl Diantilis™									
6937003	Methyl Heptenone Pure									
6978468	Methyl Laitone 10%/DPG									
0010213	Methyl Laitone 10%/TEC									
7594003	Methyl Octyne Carbonate									
6993001	Methyl Pamplemousse									
9411003	Methyl Tuberate Pure									
5851533	Mevantraal									
7289001	Musk R1									
0408601	Myraldyl Acetate									
7446003	Nectaryl									
0014073	Neobergamate Forte									
7450003	Neofolione									
1489703	Nympheal									
7622363	Okoumal™									
6638701	Orcinyl 3									
5166003	Oxyoctaline Formate									

# Fragrance Ingredients

Code	Product	        								
		Renewable Carbon	Biodegradability	Ecotoxicity	Waste	Chemistry	Solvents Used	Process Complexity	Olfactive Impact	Social Responsibility
0025633	Paradisamide™									
1394573	Pelargene									
8753253	Peonile™									
1394793	Petiole									
0014363	Pharaone™ 10%/DPG									
1597503	Phenyl Acetaldehyde 85%/PEA									
1600003	Phenyl Propionic Aldehyde									
5845473	Pivacyclene									
3496423	Pivarose									
1386453	Quintone									
8683003	Rhubafuran									
5845523	Rosyrane Super									
0015893	Safraleine™									
8797001	Safranal									
8847801	Sandalore™									
8892308	Sclarene 80%/DPG									
0012543	Silvial™									
8974203	Spirambrene									
0010703	Spirogalbanone™ Pure									
9023501	Stemone™									
5200003	Strawberry Pure									
1623003	Syringa Aldehyde 50%									
9177303	Tangerinol									

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Code	Product										
		Renewable Carbon	Biodegradability	Ecotoxicity	Waste	Chemistry	Solvents Used	Process Complexity	Olfactive Impact	Social Responsibility	
9254001	Tetrahydro Citral										
0014203	Toscanol™										
9385201	Tridecene-2-Nitrile										
0027553	Ultravaniil 80%/DPG										
9449001	Undecatriene										
0011033	Undecatriene 10%/TEC										
9449903	Undecavertol										
1382293	Velvione™										
9644003	Verdantiol										
0010023	Verdoracine										
9644601	Vernaldehyde™										
5503001	Zingerone										

# Contact Us

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## **Givaudan SA**

Head Office

Chemin de la Parfumerie, 5  
1214 Vernier  
SWITZERLAND

Tel. +41 22 780 9111  
fragrances.fib@givaudan.com

**[www.givaudan.com](http://www.givaudan.com)**



## **Europe**

Givaudan SA  
Chemin de la Parfumerie, 5  
1214 Vernier  
SWITZERLAND  
Tel. +41 22 780 9111

## **USA, Canada**

Givaudan Fragrances Corp.  
717 Ridgedale Ave  
East Hanover, NJ 07936  
USA  
Tel. +1 973 576 9332

## **South America, Mexico**

Givaudan Colombia SAS  
Carrera 98 # 25G - 40  
151196 Bogotá, D.C.  
COLOMBIA  
Tel. +57 1 267 4975

## **South Asia, Middle East, Africa**

Givaudan India Pvt Ltd  
401 Akruiti Centre Point  
4th Floor MIDC - Central Road, MIDC  
Andheri East  
Mumbai 400 093  
INDIA  
Tel. +91 22 6662 5700

## **China, Indonesia, Malaysia, Singapore, Thailand**

Givaudan Fragrances (Shanghai) Ltd  
298 Li Shi Zhen Road  
Zhang Jiang Hi-Tech Park  
Pudong New Area  
201203 Shanghai  
CHINA  
Tel. +86 21 2893 1268

## **Japan, South Korea, Taiwan**

Givaudan Japan KK  
3014-1, Shinohara-cho, Kohoku-ku,  
Yokohama,  
Kanagawa, 222-0026  
JAPAN  
Tel. +81 45 423 3130

# Givaudan SA

Chemin de la Parfumerie, 5  
CH – 1214 Vernier  
SWITZERLAND

Tel. +41 22 780 9111  
fragrances.fib@givaudan.com

[www.givaudan.com](http://www.givaudan.com)