Fragrance Ingredients
Sustainability Profile

Givaudan

engage your senses

Fragrance Ingredients
Sustainability Profile

Contents

Sustainability Parameters

RENEWABLE CARBON

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 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

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
- Not assessed

ECOTOXICITY

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

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

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

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

SOCIAL RESPONSIBILITY

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

Fragrance Ingredients

Code	Product	Renewable Carbon	Biodegradability	Ecotoxicity	Waste	Chemistry	Solvents Used	Process Complexity	Olfactive Impact	Social Responsibility
0073003	Acetal CD	●	●	●	●	●	●	●	●	●
0087001	Acetal E	●	●	●	●	●	●	●	●	●
0098001	Acetal R	●	●	●	●	●	●	●	●	●
0420003	Acetate C 9 Nonylic	●	●	●	●	●	●	●	●	●
1028001	Adoxal	●	●	●	●	●	●	●	●	●
1141003	Alcohol C 11 Undecylenic	●	●	●	●	●	●	●	●	●
1560803	Aldehyde Iso C 11	●	●	●	●	●	●	●	●	●
1793703	Amberketal 1%/TEC	●	●	●	●	●	●	●	●	●
8755303	Amberketal IPM	●	●	●	●	●	●	●	●	●
1472033	Ambermax 10%/TEC	●	●	●	●	●	●	●	●	●
1472023	Ambermax 50%/Dowanol TPM	●	●	●	●	●	●	●	●	●
1832003	Ambrettolide	●	●	●	●	●	●	●	●	●
1836803	Ambrofix*	●	●	●	●	●	●	●	●	●
1486273	Ambrofix Flakes	●	●	●	●	●	●	●	●	●
2560001	Amyl Benzoate	●	●	●	●	●	●	●	●	●
8810001	Amyl Salicylate	●	●	●	●	●	●	●	●	●
1884001	Amyl Vinyl Carbinol	●	●	●	●	●	●	●	●	●
5846393	Anther	●	●	●	●	●	●	●	●	●
2323103	Argeol DIP Substitute	●	●	●	●	●	●	●	●	●
2365901	Aurantiol Pure	●	●	●	●	●	●	●	●	●
7043003	Azarbre	●	●	●	●	●	●	●	●	●

*Produced using biotechnology

Renewable Carbon · Biodegradability · Ecotoxicity · Waste · Chemistry

Code	Product	Renewable Carbon	Biodegradability	Ecotoxicity	Waste	Chemistry	Solvents Used	Process Complexity	Olfactive Impact	Social Responsibility
6500001	Benzyl Laurate	●	●	●	●	●	●	●	●	●
8191001	Benzyl Phenyl Acetate	●	●	●	●	●	●	●	●	●
8429001	Benzyl Propionate	●	●	●	●	●	●	●	●	●
8813001	Benzyl Salicylate	●	●	●	●	●	●	●	●	●
5206903	Berryflor	●	●	●	●	●	●	●	●	●
2751503	Bisabolene	●	●	●	●	●	●	●	●	●
2786903	Boisiris	●	●	●	●	●	●	●	●	●
2837903	Bourgeonal	●	●	●	●	●	●	●	●	●
1384163	Calyxol	●	●	●	●	●	●	●	●	●
3369003	Caryophyllenol	●	○	●	●	●	●	●	●	●
3491103	Celery Ketone	●	●	●	●	●	●	●	●	●
7225001	Cervolide	●	●	●	●	●	●	●	●	●
3507501	Cetonal	●	●	●	●	●	●	●	●	●
3519003	Cetone V	●	●	●	●	●	●	●	●	●
3889403	Cinnamyl Cinnamate Distilled	●	●	●	●	●	●	●	●	●
4567003	Citral Dimethyl Acetal	●	●	●	●	●	●	●	●	●
5847673	Citrathal Conc S	●	●	●	●	●	●	●	●	●
5847683	Citrathal Concentrate S TW	●	●	●	●	●	●	●	●	●
5845063	Citrathal Concentrate TW	●	●	●	●	●	●	●	●	●
5847663	Citrathal Tech	●	●	●	●	●	●	●	●	●
5119001	Citronellyl Formate	●	●	●	●	●	●	●	●	●

Solvents Used · Process Complexity · Olfactive Impact · Social Responsibility

Fragrance Ingredients

Code	Product
4083803	Citroxide
0015173	Cosmone
4198003	Creosol
3280001	Cresyl Caprylate Para
6183003	Cresyl Isobutyrate Para
4223103	Cumin Nitrile
1515001	Cuminic Aldehyde
1177003	Cuminyl Alcohol
1534001	Cyclamen Aldehyde Extra
8819601	Cyclohexyl Salicylate
0405603	Cyperate
4356101	Decatone
4357003	Decenal-4-Trans
4485103	Dihydro Ambrate
4508403	Dihydro Ionone Beta
1433123	Dihydro Myrcenyl Acetate
4591003	Dimethyl Octenone
4609001	Dimetol
4685003	Dupical
4697403	Ebanol
5845123	Elintaal

Code	Product
4349403	Ethyl Decadienoate
8802603	Ethyl Safranate
5849083	Florane
8754243	Florhydral
8467001	Florocyclene
5083303	Florosa
5092501	Folenox
5093003	Folione
5094001	Folrosia
5202703	Freskomenthe
1461553	Frutonile
1390623	Gardamide
5361601	Gardocyclene
5464203	Geranodyle
5134001	Geranyl Formate
8215001	Geranyl Phenyl Acetate
5542803	Givescone
5631203	Glycolierral
0310001	Guaiyl Acetate Tech
5653603	Gyrane
1678001	Heptone

Renewable Carbon · Biodegradability · Ecotoxicity · Waste · Chemistry

Solvents Used · Process Complexity · Olfactive Impact · Social Responsibility

Fragrance Ingredients

Code	Product
0025743	Herbanate
5698353	Herboxane
0181601	Hexenyl Acetate Cis & Trans
2581601	Hexenyl-3-Cis Benzoate
8825001	Hexenyl-3-Cis Salicylate
0335001	Hexyl Acetate
8826001	Hexyl Salicylate
5979201	Indolene 50%/CSO
6041001	Irisone Pure
6065003	Irone Alpha
1490553	Irone Alpha FL
6068003	Irone Alpha Refined
1465543	Isobutavan
8218001	Isobutyl Phenyl Acetate
6230003	Isocyclocitral Tech
6249003	Isojasmone B 11
5850143	Isolongifolanone
6253503	Isomenthone DL
0350003	Isopulegyl Acetate
6281753	Isoraldeine 95
0513501	Jasmacyclene

Code	Product
5850253	Jasmatone
6472003	Jasmin Lactone Delta
6340001	Jasmone Cis
6346803	Jasmonyl
6347001	Jasmonyl LG
6322401	Jasmopyrane
6347541	Jasmopyrane Forte
8754013	Javanol
1493163	Javanol Super
5385203	Jessate
6378003	Kephalis
3506503	Ketoisophorone Pure
0017643	Labienoxime 10%/IPM-TEC
6570203	Lemonile
5845733	Levistamel 25%/TEC
0027063	Ligantraal
7852493	Lime Oxide
4523001	Limetol
7852501	Linalool Oxide
2597001	Linalyl Benzoate
3910003	Linalyl Cinnamate

Renewable Carbon · Biodegradability · Ecotoxicity · Waste · Chemistry

Solvents Used · Process Complexity · Olfactive Impact · Social Responsibility

Fragrance Ingredients

Code	Product
5150501	Linalyl Formate
6170501	Linalyl Isobutyrate
8448751	Linalyl Propionate
6576003	Maceal
6655003	Madrox
6638901	Magnolione
6172003	Maltyl Isobutyrate
6710003	Mayol
6746001	Melonal
6846003	Metambrate
6906203	Methyl Diantilis
6908001	Methyl Diphenyl Ether
6937003	Methyl Heptenone Pure
6978468	Methyl Laitone 10%/DPG
0010213	Methyl Laitone 10%/TEC
7594003	Methyl Octyne Carbonate
6993001	Methyl Pamplemousse
7989003	Methyl Quinoline Para
9411003	Methyl Tuberate Pure
6931003	Methyl-6 Heptadien-3,5 One-2
5851533	Mevantraal

Renewable Carbon · Biodegradability · Ecotoxicity · Waste · Chemistry

Code	Product
7289001	Musk R1
0408601	Myraldyl Acetate
7446003	Nectaryl
0014073	Neobergamate Forte
7450003	Neofolione
7568001	Nonadienal
7568493	Nonadienol-2,6
7569203	Nonadyl
7622363	Okoumal
6638701	Orcinyl 3
5166003	Oxyoctaline Formate
0025633	Paradisamide
1394573	Pelargene
8753253	Peonile
1394793	Petiole
0014363	Pharaone 10%/DPG
1597503	Phenyl Acetaldehyde 85%/PEA
1600003	Phenyl Propionic Aldehyde
3929001	Phenyl Propyl Cinnamate
5845473	Pivacyclene
3496423	Pivarose

Solvents Used · Process Complexity · Olfactive Impact · Social Responsibility

Fragrance Ingredients

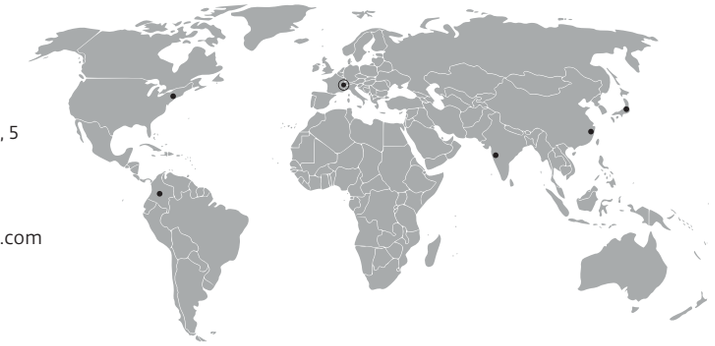
Code	Product
1386453	Quintone
8674701	Rhodinol 70
8679003	Rhodinol Pure
8683003	Rhubafuran
5845523	Rosyrane Super
8686401	Rum Acetal
0015893	Safraleine
8797001	Safranal
8797103	Safranal P
8847801	Sandalore
0029503	Sclarene 50%/TEC
8892308	Sclarene 80%/DPG
0012543	Silvial
1380433	Sinpine P
8974203	Spirambrene
0010703	Spirogalbanone Pure
9023501	Stemone
5200003	Strawberry Pure
1623003	Syringa Aldehyde 50%
9177303	Tangerinol
5854233	Terpinyl Isobutyrate Alpha

Code	Product
9254001	Tetrahydro Citral
0014203	Toscanol
9385201	Tridecene-2-Nitrile
0027553	Ultravanil 80%/DPG
9449001	Undecatriene
0011033	Undecatriene 10%/TEC
9449603	Undecatriene Super
9449903	Undecavertol
1382293	Velvione
9644003	Verdantiol
0010023	Verdoracine
9644601	Vernaldehyde
9705003	Vetynal Fine
9706003	Vetyvenal
5503001	Zingerone

Renewable Carbon · Biodegradability · Ecotoxicity · Waste · Chemistry

Solvents Used · Process Complexity · Olfactive Impact · Social Responsibility

Contact Us



Givaudan SA
Head Office

Chemin de la Parfumerie, 5
1214 Vernier
SWITZERLAND

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

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 Akruti 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

PEFC™ **10-31-1443 / Certifié PEFC** / pefc-france.org

Printed by Kalistene certified Imprim'Vert,
on certified PEFC paper from sustainably managed forests using plant-based ink
Design by exatypo.com