SAFETY DATA SHEET (SDS)

Prepared in accordance with the Globally Harmonized System (GHS) and Regulation (EC) No. 2020/878 (REACH, as amended)

Galaxolide™ Undiluted

SECTION 1: IDENTIFICATION OF THE SUBSTANCE AND COMPANY

1.1 Product Identifier

Parameter	Details
Trade Name	Galaxolide™ Undiluted
Alternative IFF Name	Galaxolide Pure
Common Abbreviation	HHCB
Chemical Name	4,6,6,7,8,8-Hexamethyl-1H,3H,4H,6H,7H,8H-indeno[5,6-c]pyran
Alternative Chemical Name	1,3,4,6,7,8-Hexahydro-4,6,6,7,8,8-hexamethylcyclopenta[g]-2-benzopyran
INCI Name	Hexamethylindanopyran
CAS Number	1222-05-5
EC Number	214-946-9
REACH Registration Number	01-2119488227-29-0000, subject to current IFF confirmation
Molecular Formula	C_{18} H_{26} O
Molecular Weight	258.4 g/mol
Chemical Family	Polycyclic musk / Isochroman
IFF Product Code	00070290
IFF IPC Number	70290
Physical Form	Highly viscous liquid
Grade	Professional perfumery grade

The product identity and IFF code are stated in the available manufacturer SDS and Product Data Sheet.

1.2 Recommended Uses

- Fine-fragrance formulation
- Musk accords
- Floral and muguet fragrances
- Personal-care fragrance compounds
- Soap and detergent fragrances
- Fabric-care fragrances
- Air-care and household fragrances
- Candles and incense compositions
- Professional olfactory evaluation

1.3 Uses Advised Against

- Internal consumption
- Direct undiluted application to skin
- Use as a finished consumer product
- Food or flavour applications unless separately authorised
- Pharmaceutical use
- Use by children
- Uncontrolled environmental release
- Use contrary to applicable IFRA Standards
- Use without a finished-product safety assessment

1.4 Supplier

Aromology Trading LLC
G05 Al Ghazal Building
Nadd Al Hamar
Dubai, United Arab Emirates

Website: www.aromology.com
Email: info@aromology.com
Telephone: +971 505197601

1.5 Original Manufacturer

International Flavors & Fragrances Inc. – IFF

The latest manufacturer-issued SDS and batch documentation shall prevail.

1.6 Emergency Contact

Contact:

- Local emergency medical services
- The nearest poison-control centre
- A qualified physician
- The emergency telephone number shown on the current IFF SDS or shipping documentation

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SECTION 2: HAZARDS IDENTIFICATION

2.1 GHS/CLP Classification

Hazard Class	Classification
Hazardous to the Aquatic Environment—Acute	Category 1
Hazardous to the Aquatic Environment—Chronic	Category 1

The available IFF SDS identifies Galaxolide Pure as Aquatic Acute 1 and Aquatic Chronic 1.

2.2 Label Elements

Signal Word

Warning

Hazard Pictogram

GHS09 – Environment

Hazard Statements

- H400: Very toxic to aquatic life.
- H410: Very toxic to aquatic life with long-lasting effects.

Precautionary Statements

- P273: Avoid release to the environment.
- P391: Collect spillage.
- P501: Dispose of contents and container through an authorised waste facility.

Additional Recommended Precautions

- Avoid unnecessary inhalation of vapour or mist.
- Avoid prolonged skin and eye contact.
- Wear suitable gloves during bulk handling.
- Keep the container tightly closed.
- Wash hands after handling.

2.3 Other Hazards

- Spilled product may create a slipping hazard.
- The material is highly viscous at ambient temperature.
- Heating may generate concentrated vapours.
- The product is not readily biodegradable.
- It may persist and accumulate in environmental compartments.
- The material is intended for trained professional users.

2.4 PBT and vPvB Assessment

The current manufacturer and REACH assessment must be consulted for the formal PBT/vPvB conclusion.

The substance has high hydrophobicity and long-term aquatic hazard classification, requiring strict environmental controls.

2.5 Endocrine-Disrupting Properties

No endocrine-disrupting classification is assigned in this representative document.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substance

Component	CAS Number	EC Number	Representative Concentration
Galaxolide / HHCB	1222-05-5	214-946-9	Technical undiluted material

3.2 Chemical Characterisation

Galaxolide is:

- A polycyclic synthetic musk
- An isochroman fragrance material
- A technical mixture of stereoisomers
- Supplied without an intentionally added carrier in the undiluted grade

3.3 Representative Isomeric Profile

The IFF Product Data Sheet reports a multi-peak GC profile rather than a single pure-isomer assay.

GC Component	IFF Representative Range
Galaxol	0.00–0.50%
Peak 1	2.00–6.00%
Peak 2	2.00–6.00%
Major Peak	69.00–76.00%
Peak 4	1.50–3.00%
Peak 5	1.50–3.00%
Peak 6	1.50–3.00%
Peak 7	2.00–5.00%
Peak 8	2.00–5.00%
Galaxolide D Peak	0.00–0.20%
Galaxolide L Peak	0.00–0.20%

These are manufacturer specification ranges, not batch results.

3.4 Additives

Additive	Status
Carrier or Diluent	None in the undiluted grade
Typical Antioxidants	None reported
Preservative	None reported
Added Colour	None expected

The IFF Product Data Sheet states that no typical antioxidant is added.

SECTION 4: FIRST-AID MEASURES

4.1 Inhalation

- Move the affected person to fresh air.
- Keep at rest in a comfortable position.
- Loosen restrictive clothing.
- Obtain medical advice if coughing, headache, dizziness or respiratory discomfort persists.
- If breathing stops, trained personnel should begin artificial respiration.

4.2 Skin Contact

- Remove contaminated clothing.
- Wash skin thoroughly with soap and water.
- Do not use organic solvents to clean the skin.
- Obtain medical advice if irritation or discomfort develops.
- Wash contaminated clothing before reuse.

4.3 Eye Contact

- Rinse cautiously with clean water for at least 15 minutes.
- Hold the eyelids open.
- Remove contact lenses where easy to do.
- Continue rinsing.
- Obtain medical attention if irritation persists.

4.4 Ingestion

- Rinse the mouth.
- Do not induce vomiting unless directed by medical personnel.
- Never give anything by mouth to an unconscious person.
- Obtain medical advice if a significant quantity has been swallowed or symptoms occur.

4.5 Most Important Symptoms and Effects

Possible symptoms include:

- Temporary eye discomfort
- Mild skin irritation after prolonged exposure
- Nausea or gastrointestinal discomfort
- Headache following excessive vapour exposure

4.6 Medical Treatment

Treat symptomatically.

No specific antidote is known.

SECTION 5: FIRE-FIGHTING MEASURES

5.1 Suitable Extinguishing Media

- Carbon dioxide
- Dry chemical powder
- Alcohol-resistant foam
- Water fog for cooling containers

5.2 Unsuitable Extinguishing Media

Do not use a direct high-pressure water jet because it may spread burning liquid.

5.3 Specific Fire Hazards

The material is not classified as a flammable liquid under the available data but is combustible when strongly heated.

The IFF Product Data Sheet reports a flash point of approximately 144 °C.

Combustion may produce:

- Carbon monoxide
- Carbon dioxide
- Irritating smoke
- Unidentified organic decomposition products

5.4 Firefighter Protection

Wear:

- Self-contained breathing apparatus
- Full protective clothing
- Chemical-resistant gloves
- Protective footwear

5.5 Additional Measures

- Cool exposed containers with water spray.
- Remove containers from the fire area where safe.
- Approach from upwind.
- Prevent contaminated firefighting water from entering drains or waterways.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal Precautions

- Restrict access to the affected area.
- Provide adequate ventilation.
- Avoid skin and eye contact.
- Avoid breathing concentrated vapour or mist.
- Wear protective gloves and eye protection.
- Remove ignition sources as a general precaution.
- Exercise care because the spill may create a slippery surface.

6.2 Environmental Precautions

- Prevent entry into drains and sewers.
- Prevent contamination of soil.
- Prevent release into surface water or groundwater.
- Contain all significant spills.
- Notify relevant authorities if environmental contamination occurs.

6.3 Containment and Cleanup

- Stop the leak where safe.
- Absorb using sand, earth, vermiculite or inert absorbent.
- Transfer waste into sealed and labelled containers.
- Clean the remaining surface with detergent and water.
- Do not flush uncontrolled quantities into drains.
- Dispose of waste through an authorised contractor.

6.4 References

See:

- Section 8 for PPE
- Section 13 for disposal
- Section 14 for transport

SECTION 7: HANDLING AND STORAGE

7.1 Safe Handling

- Handle in a well-ventilated area.
- Avoid unnecessary inhalation of vapour or mist.
- Avoid prolonged skin contact.
- Avoid eye contact.
- Wear protective gloves during bulk handling.
- Use clean, dry equipment.
- Keep containers closed when not in use.
- Do not eat, drink or smoke in handling areas.
- Wash hands after handling.

7.2 Material Handling and Sampling

Galaxolide Undiluted is highly viscous.

The IFF Product Data Sheet instructs users to:

- Heat the container in a hot room at approximately 60–70°C for 24 hours
- Mix well before sampling or use

This procedure is intended to homogenise the material and facilitate handling.

When warming:

- Avoid direct flame or uncontrolled local heating.
- Use thermostatically controlled equipment.
- Ensure adequate ventilation.
- Keep containers closed where practical.
- Wear appropriate thermal and chemical PPE.

7.3 Storage Conditions

Store:

- In the original tightly closed container
- At approximately 5–45°C
- In a cool, dry and ventilated area
- Protected from direct sunlight
- Away from strong oxidising agents
- Away from food and beverages
- With containers upright
- Out of reach of children and unauthorised personnel

IFF lists ambient storage between approximately 5°C and 45°C.

7.4 Specific End Use

Professional fragrance formulation only.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Occupational Exposure Limits

No occupational exposure limit is established for the complete commercial substance in this representative document.

Consult:

- Current IFF SDS
- National workplace limits
- Local occupational-health regulations
- Workplace risk assessment

8.2 Engineering Controls

- Provide adequate general ventilation.
- Use local exhaust ventilation during heating, transfer or bulk filling.
- Minimise aerosol and mist formation.
- Provide an eyewash station.
- Provide washing facilities.
- Control temperatures during warming operations.

8.3 Eye and Face Protection

Wear:

- Safety glasses with side protection
- Chemical splash goggles where splashing is possible
- Face shield during bulk transfer if needed

8.4 Hand Protection

Wear chemical-resistant gloves, such as:

- Nitrile rubber
- Butyl rubber
- Neoprene

Confirm glove compatibility and breakthrough time with the manufacturer.

8.5 Skin Protection

Wear:

- Laboratory coat
- Long sleeves
- Closed footwear
- Chemical-resistant apron for bulk handling

8.6 Respiratory Protection

Normally unnecessary under adequate ventilation.

Where vapour or mist exposure cannot be controlled, use an approved organic-vapour respirator.

8.7 Hygiene Measures

- Wash hands after handling.
- Remove contaminated clothing promptly.
- Wash contaminated clothing before reuse.
- Do not eat, drink or smoke in chemical-handling areas.
- Maintain good housekeeping.

8.8 Environmental Exposure Controls

Prevent uncontrolled release into drains, soil and waterways.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Property	Representative Information
Physical State	Highly viscous liquid
Appearance	Clear viscous liquid
Colour	Colourless
Odour	Clean, sweet, floral, woody musk
Odour Threshold	Very low
Molecular Formula	C_{18} H_{26} O
Molecular Weight	258.4 g/mol
pH	Not applicable
Melting/Freezing Point	Below normal room temperature; batch dependent
Boiling Point	High boiling; current manufacturer data required
Flash Point	Approximately 144 °C
Vapour Pressure at 23 °C	Approximately 0.000143 mm Hg
Relative Density	Approximately 1.00; batch data required
Refractive Index at 20 °C	1.5310–1.5360
Water Solubility	Practically insoluble
Solubility in Alcohol/Oils	Soluble or dispersible in perfumery media
Log Pow	Approximately 5.3
Evaporation Rate	Very slow
Viscosity	Very high at ambient temperature
Explosive Properties	Not expected to be explosive
Oxidising Properties	Not oxidising
Substantivity	Greater than 48 hours
IFF Typical Use Level	Up to 50%

IFF's typical use level is olfactory guidance, not an IFRA maximum or finished-product safety limit.

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

No significant reactivity hazard is expected under recommended handling conditions.

10.2 Chemical Stability

Stable when:

- Stored tightly closed
- Protected from heat and direct sunlight
- Kept away from incompatible materials
- Handled with clean equipment

10.3 Hazardous Reactions

Hazardous polymerisation is not expected.

10.4 Conditions to Avoid

Avoid:

- Excessive or uncontrolled heating
- Open flames
- Strong ultraviolet exposure
- Prolonged air exposure
- Contamination
- Contact with incompatible substances

10.5 Incompatible Materials

- Strong oxidising agents
- Strong acids
- Strong alkalis

10.6 Hazardous Decomposition Products

Thermal decomposition or combustion may produce:

- Carbon monoxide
- Carbon dioxide
- Irritating smoke
- Unidentified organic vapours

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Acute Oral Toxicity

Available manufacturer data indicate low acute oral toxicity.

The current IFF SDS should be used for the definitive value and classification.

11.2 Acute Dermal Toxicity

Test	Available Result
Dermal LD_{50}, rat	Greater than 6,500 mg/kg

The available IFF SDS reports no acute dermal-toxicity classification at this value.

11.3 Skin Corrosion/Irritation
Available rabbit testing reported:
No skin irritation
The material is not classified for skin irritation in the referenced IFF SDS.

11.4 Serious Eye Damage/Irritation
Available rabbit testing reported:
No eye irritation
Direct contact should nevertheless be avoided.

11.5 Respiratory Sensitisation
No respiratory-sensitisation classification is assigned.

11.6 Skin Sensitisation
Available animal maximisation testing reported no sensitisation.
No skin-sensitisation classification is assigned in the referenced SDS.

11.7 Germ-Cell Mutagenicity

Available tests reported:

- Ames test: Negative
- In-vitro chromosome-aberration test: Negative

11.8 Carcinogenicity
No carcinogenicity classification is assigned in this representative document.

11.9 Reproductive Toxicity
No reproductive-toxicity classification is assigned in this representative document.

11.10 Specific Target Organ Toxicity—Single Exposure
Not classified based on available information.

11.11 Specific Target Organ Toxicity—Repeated Exposure
No classification is assigned in this representative document.

11.12 Aspiration Hazard
Not classified as an aspiration hazard.

11.13 Likely Routes of Exposure

- Skin contact

- Eye contact
- Inhalation of vapour or mist
- Accidental ingestion

SECTION 12: ECOLOGICAL INFORMATION

12.1 Ecotoxicity

Classification:

- Aquatic Acute Category 1
- Aquatic Chronic Category 1

Very toxic to aquatic life with long-lasting effects.

12.2 Persistence and Degradability

IFF describes Galaxolide Undiluted as:
Non-biodegradable
The material should not be released into the environment.

12.3 Bioaccumulative Potential

The log Pow of approximately 5.3 indicates strong partitioning into organic matter and potential bioaccumulation.

12.4 Mobility in Soil

Because the material is highly hydrophobic and practically insoluble in water, it is expected to adsorb strongly to soil and sediment.

12.5 PBT/vPvB Assessment

Use the latest manufacturer REACH assessment for the definitive regulatory conclusion.

12.6 Other Adverse Effects

- May persist in aquatic environments.
- May accumulate in sediment or biological material.
- Prevent all uncontrolled environmental release.
- Collect all significant spills.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Product Disposal

Dispose of unused product through an authorised chemical-waste contractor.

Do not discharge into:

- Drains
- Sewers
- Soil
- Surface water

- Groundwater
- Domestic waste

13.2 Contaminated Packaging

- Empty containers may retain hazardous residue.
- Do not reuse uncleaned containers.
- Keep empty containers closed.
- Send packaging to an authorised recycling or disposal facility.
- Do not cut, puncture, weld or burn contaminated containers.

13.3 Waste Treatment

Controlled incineration may be appropriate where authorised.

Waste classification must consider:

- Environmental hazard classification
- Local waste legislation
- Container type
- Product contamination
- Disposal-facility requirements

SECTION 14: TRANSPORT INFORMATION

14.1 Representative Transport Classification

Parameter	Details
UN Number	UN 3082
Proper Shipping Name	Environmentally hazardous substance, liquid, n.o.s.
Technical Name	Galaxolide / HHCB
Transport Hazard Class	9
Packing Group	III
Environmental Hazard	Yes
Marine Pollutant	Yes

14.2 ADR/RID

- UN 3082
- Environmentally hazardous substance, liquid, n.o.s.
- Class 9
- Packing Group III
- Environmentally hazardous

14.3 IMDG

- UN 3082

- Environmentally hazardous substance, liquid, n.o.s.
- Class 9
- Packing Group III
- Marine pollutant

14.4 IATA/ICAO

- UN 3082
- Environmentally hazardous substance, liquid, n.o.s.
- Class 9
- Packing Group III

14.5 Special Precautions

- Keep containers upright and tightly sealed.
- Protect from leakage and physical damage.
- Avoid environmental release.
- Use approved packaging.
- Confirm limited-quantity or environmentally hazardous-substance exemptions before shipment.
- Use the latest IFF SDS and current transport rules for final classification.

SECTION 15: REGULATORY INFORMATION

15.1 Applicable Regulations

Review under:

- Regulation (EC) No. 1907/2006 – REACH
- Regulation (EC) No. 1272/2008 – CLP
- Regulation (EU) 2020/878 – SDS requirements
- Regulation (EC) No. 1223/2009 – Cosmetic Products
- Regulation (EU) 2023/1545 – Fragrance-allergen labelling
- Current IFRA Standards
- Applicable UAE chemical and occupational-safety requirements
- ADR, IMDG and IATA transport requirements
- Destination-country environmental regulations

15.2 Regulatory Identity

Parameter	Details
CAS Number	1222-05-5
EC Number	214-946-9
INCI Name	Hexamethylindanopyran
Chemical Type	Polycyclic musk
Carrier	None in undiluted grade
Environmentally Hazardous	Yes

15.3 Cosmetic and Fragrance Use

Use in finished products requires:

- Current IFRA conformity documentation
- EU allergen assessment
- Finished-product exposure and safety assessment
- Correct ingredient labelling
- Environmental-risk controls
- Stability and compatibility testing
- Regional regulatory review

15.4 Chemical Safety Assessment

The available IFF SDS states that a chemical safety assessment has been conducted for the substance.

SECTION 16: OTHER INFORMATION

16.1 Olfactive Description

Galaxolide Undiluted provides:

- Clean musk
- Sweet floral musk
- Soft woody character
- Powdery freshness
- Laundry-clean effect
- Strong diffusion
- Exceptional persistence
- Smooth macrocyclic-like tonal quality

16.2 Performance

IFF reports:

Application	Performance	Stability
Fine Fragrance	Very good	Excellent
Liquid Detergent	Very good	Very good
Fabric Conditioner	Very good	Very good
Antiperspirant / Deodorant	Very good	Very good
Shampoo	Very good	Very good
Soap	Very good	Excellent
Candles	Moderate	Very good
Bleach	Good	Good

16.3 Recommended Shelf Life

24 months

Applicable to sealed, unopened containers stored under recommended conditions.

16.4 Hazard Statement Text

- H400: Very toxic to aquatic life.
- H410: Very toxic to aquatic life with long-lasting effects.

16.6 Document Basis

This representative SDS was prepared using:

- The IFF Galaxolide Pure SDS, Version 5.21, revised 28 May 2019
- The IFF Galaxolide Pure Product Data Sheet dated 26 September 2019
- IFF's current online ingredient compendium
- An available later manufacturer SDS record for Galaxolide Undiluted dated 25 November 2021

A current manufacturer SDS should be obtained before formal workplace, transport or regulatory

BATCH AND DOCUMENT VERIFICATION REQUIREMENTS

Before formal issue, confirm:

- Exact product description: Galaxolide Undiluted or Galaxolide Pure
- Current IFF product code
- Original IFF batch number
- Current IFF SDS revision
- Current REACH registration
- Exact GC isomer profile
- Refractive index
- Relative density
- Flash point
- Water content
- Colour and appearance
- Antioxidant status
- Current GHS/CLP classification
- Current aquatic M-factor
- Current transport classification
- Marine-pollutant status
- Current IFRA certificate
- Current EU allergen declaration
- Current shelf-life statement

DISCLAIMER

This Safety Data Sheet is a representative supplier-style document prepared for:

Galaxolide™ Undiluted – IFF

It is not:

- A substitute for batch-specific IFF documentation
- A finished-product safety assessment
- An IFRA Certificate of Conformity
- A quantitative EU allergen declaration
- A dangerous-goods declaration issued by a transport specialist

Before formal workplace, regulatory or transport use, verify it against:

- The latest original IFF Safety Data Sheet
- Current IFF Product Data Sheet
- Original IFF batch Certificate of Analysis
- Current IFF IFRA documentation
- Current IFF quantitative allergen declaration
- Applicable destination-country regulations
- Current ADR, IMDG and IATA requirements

Where a difference exists, current original IFF documentation shall prevail.

Authorised by:
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