



SAFETY DATA SHEET (SDS)

Prepared in accordance with the Globally Harmonized System (GHS) and Regulation (EC) No. 1907/2006 (REACH, as amended)

SECTION 1: IDENTIFICATION OF THE SUBSTANCE AND COMPANY

1.1 Product Identifier

Parameter	Details
Product Name	Ambrettolide – IFF
Product Description	Clean Musk
Chemical Name	Oxacycloheptadec-10-en-2-one
Alternative Chemical Name	(9Z)-17-Oxacycloheptadec-9-en-1-one
Common Synonym	Isoambrettolide
CAS Number	28645-51-4
Additional IFF CAS Reference	63286-42-0
EC Number	249-120-7
FEMA Number	4145
IFF IPC Number	14200
Molecular Formula	C ₁₆ H ₂₈ O ₂
Molecular Weight	252.4 g/mol
Chemical Family	Macrocyclic unsaturated lactone
Product Form	Concentrated fragrance ingredient
Grade	Professional perfumery grade

1.2 Recommended Uses

- Fine-fragrance formulation
- Musk accords
- Clean-laundry fragrances
- Floral compositions
- Fruity-floral compositions
- Amber and woody accords
- Personal-care fragrance compounds
- Soap and detergent fragrances
- Fabric-care fragrances
- Home-fragrance products
- Professional olfactory evaluation

1.3 Uses Advised Against

- Internal consumption
- Direct undiluted application to skin
- Use as a finished consumer product



- Use by children
- Pharmaceutical use
- Uncontrolled environmental release
- Use without an appropriate finished-product safety assessment
- Use contrary to applicable IFRA Standards
- Use for purposes not approved by the original manufacturer

1.4 Supplier

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1.5 Original Manufacturer

International Flavors & Fragrances Inc. — IFF

The latest manufacturer-issued technical and safety documents should prevail where available.

1.6 Emergency Contact

Contact the nearest poison-control centre, emergency medical service or qualified physician.

For transportation emergencies, use the emergency-response service specified on the applicable shipping documentation.

SECTION 2: HAZARDS IDENTIFICATION

2.1 GHS Classification

Based on available supplier safety data, the substance does not meet the criteria for classification as hazardous under the Globally Harmonized System.

Hazard Class	Classification
Physical Hazards	Not classified
Acute Oral Toxicity	Not classified
Acute Dermal Toxicity	Not classified
Skin Corrosion/Irritation	Not classified
Serious Eye Damage/Irritation	Not classified
Skin Sensitisation	Not classified based on available information
Carcinogenicity	Not classified
Germ-Cell Mutagenicity	Not classified



Reproductive Toxicity	Not classified
Specific Target Organ Toxicity	Not classified
Aspiration Hazard	Not classified
Aquatic Hazard	Not classified based on available supplier data

2.2 Label Elements

Hazard Pictograms

None required.

Signal Word

None required.

Hazard Statements

The substance does not meet the criteria for classification as hazardous based on the available supplier information.

Recommended Precautionary Statements

Although formal hazard statements are not required, the following industrial precautions are recommended:

- Avoid unnecessary breathing of vapours or mist.
- Avoid prolonged skin contact.
- Avoid contact with eyes.
- Wear suitable gloves and eye protection during bulk handling.
- Wash hands thoroughly after handling.
- Keep the container tightly closed.
- Avoid uncontrolled release to the environment.
- Dispose of contents and container according to local regulations.

2.3 Other Hazards

- Direct eye contact may cause temporary mechanical or mild irritation.
- Prolonged skin contact may cause temporary irritation in sensitive individuals.
- Spilled liquid may create a slipping hazard.
- Heating may produce irritating vapours.
- Combustion may generate carbon monoxide, carbon dioxide and irritating smoke.
- Individuals with fragrance sensitivities should minimise direct exposure.
- The concentrated material is intended for professional manufacturing use.

2.4 PBT and vPvB Assessment

Available supplier data do not identify the product as PBT or vPvB.



2.5 Endocrine-Disrupting Properties

No specific endocrine-disrupting properties are known from the available product information.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substance

Chemical Name	CAS No.	EC No.	Concentration
Oxacycloheptadec-10-en-2-one	28645-51-4	249-120-7	Approximately 100%

3.2 Alternative Identity

The commercial product may include structural or geometric isomers associated with the manufacture of Ambrettolide.

IFF additionally references CAS number 63286-42-0 for the commercial fragrance ingredient.

3.3 Chemical Description

Ambrettolide is an unsaturated macrocyclic lactone belonging to the macrocyclic musk family.

It provides:

- Clean musk character
- Warm ambrette-like softness
- Floral diffusion
- Sweet red-fruit nuances
- Excellent substantivity
- Fixative performance

3.4 Impurities and Stabilising Additives

No hazardous impurities or stabilisers are declared in this representative document.

Any antioxidant, solvent, processing aid or stabiliser present in the supplied commercial grade must be confirmed using the original IFF specification.

SECTION 4: FIRST-AID MEASURES

4.1 Inhalation

- Move the affected person to fresh air.
- Keep the person at rest in a position comfortable for breathing.
- Loosen restrictive clothing.
- Obtain medical advice if coughing, dizziness, nausea or respiratory discomfort develops or persists.
- If breathing is difficult, oxygen should be administered only by trained personnel.



4.2 Skin Contact

- Remove contaminated clothing.
- Wash the affected area thoroughly with soap and water.
- Continue washing for several minutes.
- Obtain medical advice if redness, 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 during rinsing.
- Remove contact lenses where present and easy to do.
- Continue rinsing.
- Obtain medical attention if irritation, pain or redness persists.

4.4 Ingestion

- Rinse the mouth with water.
- Do not induce vomiting.
- Never give anything by mouth to an unconscious person.
- Contact a physician or poison-control centre if a significant quantity has been swallowed or symptoms develop.
- If vomiting occurs naturally, keep the head low to reduce the risk of material entering the respiratory tract.

4.5 Most Important Symptoms and Effects

Potential symptoms may include:

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

4.6 Medical Treatment

Treat symptomatically.

No specific antidote is known.

Ensure that medical personnel are informed of the chemical identity and have access to this safety data sheet.

SECTION 5: FIRE-FIGHTING MEASURES

5.1 Suitable Extinguishing Media



- Carbon dioxide
- Dry chemical powder
- Alcohol-resistant foam
- Water fog or fine water spray

5.2 Unsuitable Extinguishing Media

Do not use a strong or direct water jet, as this may spread the burning material.

5.3 Specific Hazards

Although the material is not classified as a flammable liquid, it may burn when exposed to sufficient heat.

Fire or thermal decomposition may produce:

- Carbon monoxide
- Carbon dioxide
- Irritating organic vapours
- Aldehydes
- Dense smoke
- Partially oxidised decomposition products

5.4 Protective Equipment for Firefighters

Firefighters should wear:

- Self-contained breathing apparatus
- Full protective clothing
- Chemical-resistant gloves
- Protective boots
- Face protection

5.5 Additional Advice

- Cool exposed containers using water spray.
- Remove containers from the fire area where safe to do so.
- Approach the fire from upwind.
- Prevent contaminated firefighting water from entering drains or waterways.
- Closed containers may develop pressure when heated.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal Precautions

- Restrict access to the affected area.
- Provide adequate ventilation.



- Avoid breathing concentrated vapours or mist.
- Avoid contact with skin and eyes.
- Wear suitable gloves, protective clothing and safety glasses.
- Remove ignition sources as a general precaution.
- Exercise caution because spilled material may create a slippery surface.

6.2 Environmental Precautions

- Prevent large quantities from entering drains, sewers or waterways.
- Avoid uncontrolled release to soil.
- Notify the relevant authority if significant environmental contamination occurs.

6.3 Containment and Cleaning

- Stop the leak where safe to do so.
- Absorb using sand, earth, diatomaceous earth, vermiculite or another inert absorbent.
- Collect absorbed material in a suitable labelled waste container.
- Clean the surface with detergent and water.
- Do not wash uncontrolled quantities into drains.
- Dispose of waste according to applicable regulations.

6.4 Reference to Other Sections

See:

- Section 8 for personal protective equipment
- Section 13 for disposal requirements

SECTION 7: HANDLING AND STORAGE

7.1 Safe Handling

- Handle in a well-ventilated area.
- Avoid breathing vapour, mist or aerosol.
- Avoid prolonged or repeated skin contact.
- Avoid eye contact.
- Wear appropriate protective equipment.
- Do not eat, drink or smoke in the handling area.
- Wash hands after handling.
- Use clean, dry dispensing equipment.
- Do not pipette by mouth.
- Keep the container closed when not in use.
- Prevent contamination with water or incompatible materials.

7.2 Storage Conditions

Store:



- In the original tightly closed container
- In a cool, dry and well-ventilated location
- At approximately 15–25 °C
- Protected from direct sunlight
- Away from excessive heat
- Away from strong acids
- Away from strong alkalis
- Away from strong oxidising agents
- Away from food and beverages
- Out of reach of children

7.3 Packaging Materials

Recommended packaging includes:

- Amber glass
- Lacquer-lined aluminium
- Stainless steel
- Manufacturer-approved chemical-resistant containers

Packaging compatibility should be verified for prolonged storage.

7.4 Specific End Use

Professional use as a fragrance ingredient in aromatic compositions and fragranced consumer products.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Occupational Exposure Limits

No occupational exposure limit has been established for Ambrettolide.

8.2 Engineering Controls

- Provide adequate general ventilation.
- Use local exhaust ventilation during bulk transfer, heating or aerosol-generating operations.
- Provide access to an eyewash station.
- Provide suitable hand-washing facilities.
- Minimise generation of vapour and mist.

8.3 Personal Protective Equipment

Eye and Face Protection

Wear safety glasses with side protection.



Use chemical splash goggles where splashing is possible.

Hand Protection

Wear chemical-resistant protective gloves.

Suitable glove materials may include:

- Nitrile rubber
- Neoprene
- Butyl rubber

Glove compatibility and breakthrough time should be confirmed with the glove manufacturer.

Skin and Body Protection

Wear:

- Laboratory coat
- Long sleeves
- Closed footwear
- Chemical-resistant apron during bulk filling

Respiratory Protection

Normally not required where adequate ventilation is provided.

Where ventilation is insufficient or vapour or mist exposure is significant, use a properly fitted respirator with an organic-vapour filter in accordance with local requirements.

8.4 Hygiene Measures

- Wash hands after handling.
- Remove contaminated clothing promptly.
- Wash contaminated clothing before reuse.
- Do not eat, drink or smoke in work areas.
- Maintain good industrial hygiene practices.

8.5 Environmental Exposure Controls

Avoid uncontrolled discharge into drains, soil and natural waterways.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Property	Representative Information
Physical State	Liquid
Appearance	Clear liquid



Colour	Colourless to pale yellow
Odour	Powerful, clean, warm and substantive musk
Odour Character	Musky, floral, sweet, fruity and ambrette-like
Odour Threshold	Very low
pH	Not applicable
Melting/Freezing Point	Not determined
Boiling Range	Approximately 180–190 °C at reduced pressure
Flash Point	Approximately 99 °C to above 100 °C
Flammability	Not classified as flammable
Evaporation Rate	Very slow
Vapour Pressure at 23 °C	Approximately 0.000158 mm Hg
Vapour Density	Not determined
Relative Density	Batch-specific; approximately 0.89–0.96
Refractive Index at 20 °C	Representative range approximately 1.477–1.482
Water Solubility	Practically insoluble; less than approximately 1%
Solubility in Alcohol	Soluble or readily dispersible
Log P	Approximately 6.5
Auto-Ignition Temperature	Not determined
Decomposition Temperature	Not determined
Viscosity	Low to moderate
Explosive Properties	Not expected to be explosive
Oxidising Properties	Not oxidising
Substantivity	Greater than 48 hours
Typical IFF Use Level	Traces to 2%

The stated physical values are representative. Batch-specific IFF documentation should be used for commercial release.

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

No hazardous reaction is expected under normal recommended storage and handling conditions.

10.2 Chemical Stability

Stable under normal ambient conditions when stored in a tightly sealed container.

10.3 Possibility of Hazardous Reactions

No dangerous polymerisation or hazardous reaction is expected under normal conditions.
The substance may react with incompatible chemicals.

10.4 Conditions to Avoid

Avoid:

- Prolonged excessive heat
- Direct sunlight



- Open flames
- Excessive pressure
- Repeated heating
- Improper handling of sealed containers
- Contamination
- Prolonged exposure to air

10.5 Incompatible Materials

- Strong oxidising agents
- Strong acids
- Strong alkalis
- Reactive chemical substances

10.6 Hazardous Decomposition Products

Under fire or severe thermal decomposition:

- Carbon monoxide
- Carbon dioxide
- Irritating smoke
- Organic decomposition products

No hazardous decomposition products are expected during normal storage.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Acute Toxicity

Available supplier data indicate low acute toxicity.

Exposure Route	Test Species	Representative Result
Acute Oral Toxicity	Rat	LD ₅₀ o greater than 5,000 mg/kg
Acute Dermal Toxicity	Rabbit	LD ₅₀ o greater than 5,000 mg/kg

The material is not classified for acute oral or dermal toxicity.

11.2 Skin Corrosion/Irritation

Not classified.

Prolonged skin contact may cause temporary irritation in some individuals.

11.3 Serious Eye Damage/Irritation

Not classified.

Direct eye contact may cause temporary irritation.

11.4 Respiratory Sensitisation

No respiratory-sensitisation classification is assigned.



11.5 Skin Sensitisation

No skin-sensitisation classification is assigned based on available supplier information
Individual sensitivity cannot be completely excluded.

11.6 Germ-Cell Mutagenicity

Not classified based on available information.

11.7 Carcinogenicity

Not classified based on available information.

The product is not identified as a carcinogen by the available supplier SDS.

11.8 Reproductive Toxicity

Not classified based on available information.

11.9 Specific Target Organ Toxicity—Single Exposure

Not classified.

Excessive vapour exposure may nevertheless cause temporary discomfort.

11.10 Specific Target Organ Toxicity—Repeated Exposure

Not classified.

No reliable complete repeated-exposure dataset is included in this representative document.

11.11 Aspiration Hazard

Not classified as an aspiration hazard.

11.12 Likely Routes of Exposure

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

SECTION 12: ECOLOGICAL INFORMATION

12.1 Ecotoxicity

No complete quantitative aquatic-toxicity dataset is available in this representative document.
The material is not classified as hazardous to the aquatic environment based on the referenced supplier SDS.

Nevertheless, large or uncontrolled environmental releases should be avoided.

12.2 Persistence and Degradability

IFF describes Ambrettolide as readily biodegradable.

12.3 Bioaccumulative Potential

The substance has a relatively high log P and may partition into organic matter.
One older supplier assessment estimated:

- Log P approximately 5.37
- Bioconcentration factor approximately 2,733

Actual environmental behaviour should be evaluated using current manufacturer data.



12.4 Mobility in Soil

Due to low water solubility and a high organic-carbon adsorption potential, the substance is expected to bind strongly to soil and sediment.

12.5 PBT and vPvB Assessment

Available supplier information does not identify the material as PBT or vPvB.

12.6 Other Adverse Effects

- Avoid discharge of concentrated material into waterways.
- Large spills may form a surface film.
- No ozone-depleting properties are known.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Product Disposal

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

Do not discharge concentrated product into:

- Drains
- Sewers
- Soil
- Surface water
- Groundwater

13.2 Contaminated Packaging

- Empty containers may retain product residue.
- Do not reuse uncleaned containers.
- Clean or dispose of containers according to local requirements.
- Do not cut, weld, puncture or burn contaminated containers.

13.3 Waste Treatment

Controlled incineration or another authorised treatment method may be appropriate where legally permitted.

Waste classification should be determined according to local regulations and the actual use of the material.

SECTION 14: TRANSPORT INFORMATION

Based on available supplier safety data, Ambrettolide is not regulated as dangerous goods for normal transport.



Transport Parameter	Status
UN Number	Not applicable
UN Proper Shipping Name	Not applicable
Transport Hazard Class	Not applicable
Packing Group	Not applicable
Environmental Hazard	Not classified
Marine Pollutant	No, based on available information
Special Precautions	Keep containers tightly closed, upright and protected from heat

SECTION 15: REGULATORY INFORMATION

15.1 Applicable Regulatory Frameworks

The material may be subject to:

- Regulation (EC) No. 1907/2006 concerning REACH
- Regulation (EC) No. 1272/2008 concerning classification, labelling and packaging
- Regulation (EU) 2020/878 concerning safety-data-sheet requirements
- Regulation (EC) No. 1223/2009 concerning cosmetic products
- Regulation (EU) 2023/1545 concerning fragrance-allergen labelling
- Applicable IFRA Standards
- Applicable UAE chemical and occupational-safety requirements
- Applicable transport requirements

15.2 CLP Status

Based on available supplier information:

Not classified as hazardous under Regulation (EC) No. 1272/2008.

15.3 Chemical Inventory Identity

Identifier	Details
CAS Number	28645-51-4
EC Number	249-120-7
IFF Additional CAS Reference	63286-42-0
FEMA Number	4145
IFF IPC Number	14200

15.4 Cosmetic and Perfumery Use

Use in a cosmetic or fragranced consumer product requires:

- Formula-specific IFRA assessment
- Finished-product safety assessment
- Appropriate cosmetic ingredient labelling
- Evaluation of impurities and residual materials



- Compliance with regional product restrictions
- Appropriate exposure and stability assessment

15.5 Chemical Safety Assessment

No independent chemical safety assessment has been completed by Aromology Trading LLC for the specific supplied batch.

The original IFF documentation should be consulted.

SECTION 16: OTHER INFORMATION

16.1 Olfactive Description

Ambrettolide provides:

- Intensely substantive clean musk
- Warm ambrette-seed character
- Soft floral diffusion
- Red-fruit sweetness
- Smooth skin-like warmth
- Elegant radiance
- Long-lasting fixation
- Excellent blending performance

16.2 Performance Characteristics

IFF describes Ambrettolide as having:

- Medium top-note impact
- Medium heart-note impact
- Medium base-note impact
- Substantivity greater than 48 hours
- Very good fine-fragrance performance
- Excellent fine-fragrance stability
- Very good shampoo performance
- Good performance in liquid detergent, fabric conditioner and soap

16.3 Sustainability Information

According to IFF's fragrance ingredient compendium, Ambrettolide is described as:

- 100% renewable
- Natural derived
- Readily biodegradable



These claims belong to the IFF commercial material and should not automatically be applied to material from another manufacturer.

16.4 Recommended Shelf Life

24 months from the manufacturing date when stored unopened under recommended conditions, unless the original IFF certificate specifies otherwise.

DISCLAIMER

This Safety Data Sheet is a representative professional template prepared for Ambrettolide – IFF, Clean Musk.

Product specifications, regulatory status and safety classifications may change according to:

- Manufacturing process
- Purity
- Isomer composition
- Added stabilisers
- Regional regulatory requirements
- Updated toxicological or environmental information

Aromology Trading LLC, the original manufacturer, distributor and finished-product producer remain responsible for correct classification, safe handling, workplace risk assessment, transport compliance, formula assessment and finished-product safety.

Authorised By:

Fozia Khot
Director