

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form	: Substance
Physical state	: Solid
Substance name	: VINYLFERROCENE
Product code	: OMFE090
Formula	: C ₁₂ H ₁₂ Fe
Synonyms	: FERROCENYLETHENE
Chemical family	: METALLOCENE

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

1.2.1. Relevant identified uses

Use of the substance/mixture : Chemical intermediate

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

GELEST, INC.

11 East Steel Road
Morrisville, PA 19067

USA

T 215-547-1015 - F 215-547-2484 - (M-F): 8:00 AM - 5:30 PM EST

info@gelest.com - www.gelest.com

GELEST INC.

Fritz-Klatte-Strasse 8
65933 Frankfurt

Germany

T +49 (0) 69 3535106-500 - F +49 (0) 69 3535106-501 - (M-F): 8:00 AM - 4:00 PM

info@gelestde.com - www.gelestde.com

1.4. Emergency telephone number

Emergency number : CHEMTREC: 1-800-424-9300 (USA); +1 703-527-3887 (International)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Flammable solids, Category 2 H228

Full text of H statements : see section 16

Adverse physicochemical, human health and environmental effects

No additional information available

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP) :



GHS02

Signal word (CLP) :

Warning

Hazard statements (CLP) :

H228 - Flammable solid.

Precautionary statements (CLP) :

P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P240 - Ground/bond container and receiving equipment.

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P241 - Use explosion-proof electrical equipment.

P370+P378 - In case of fire: Use water spray, foam, carbon dioxide, dry chemical to extinguish.

2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances

Substance type : Mono-constituent
Name : VINYLFERROCENE
CAS-No. : 1271-51-8
EC-No. : 215-041-1

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Vinylferrocene	(CAS-No.) 1271-51-8 (EC-No.) 215-041-1	95 - 100	Flam. Sol. 2, H228

Full text of H-statements: see section 16

3.2. Mixtures

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : Remove contaminated clothing and shoes. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). If possible show this sheet; if not available show packaging or label.

First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing. If you feel unwell, seek medical advice.

First-aid measures after skin contact : Wash with plenty of water/.... Get medical advice/attention.

First-aid measures after eye contact : Immediately flush eyes thoroughly with water for at least 15 minutes. Get medical advice/attention.

First-aid measures after ingestion : Never give anything by mouth to an unconscious person. Get medical advice/attention.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/effects after inhalation : May cause irritation to the respiratory tract.

Symptoms/effects after skin contact : May cause skin irritation.

Symptoms/effects after eye contact : May cause eye irritation.

Symptoms/effects after ingestion : No information available.

4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Water spray. Foam. Carbon dioxide. Dry chemical.

Unsuitable extinguishing media : Do not use straight streams.

5.2. Special hazards arising from the substance or mixture

Fire hazard : Flammable solid. Irritating fumes and organic acid vapors may develop when material is exposed to elevated temperatures or open flame.

5.3. Advice for firefighters

Firefighting instructions : Exercise caution when fighting any chemical fire. Use water spray to cool exposed surfaces.

Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection. Avoid contact with skin and eyes. Do not breathe dust.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Eliminate ignition sources. Use special care to avoid static electric charges.

6.1.1. For non-emergency personnel

Protective equipment : Wear protective equipment as described in Section 8.

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Emergency procedures : Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. Equip cleanup crew with proper protection. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if product enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

For containment : Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.

Methods for cleaning up : Sweep or shovel spills into appropriate container for disposal.

6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed : Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Precautions for safe handling : Avoid contact with skin and eyes. Avoid dust formation. Do not breathe dust. Ground/bond container and receiving equipment. Provide local exhaust or general room ventilation to minimize exposure to dust.

Hygiene measures : Wash contaminated clothing before reuse. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Proper grounding procedures to avoid static electricity should be followed. Use explosion-proof electrical equipment.

Storage conditions : Keep container tightly closed.

Incompatible materials : Acids. Alkalis. Peroxides. Oxidizing agent.

Storage area : Store in a well-ventilated place. Store away from heat.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No additional information available

8.2. Exposure controls

Appropriate engineering controls:

Provide local exhaust or general room ventilation.

Personal protective equipment:

Avoid all unnecessary exposure. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

Hand protection:

Neoprene or nitrile rubber gloves

Eye protection:

Chemical goggles. Contact lenses should not be worn

Skin and body protection:

Wear suitable protective clothing

Respiratory protection:

Where exposure through inhalation may occur from use, respiratory protection equipment is recommended. NIOSH-certified dust and mist (teal cartridge) respirator.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state : Solid

Appearance : Crystals.

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Molecular mass	: 212.08 g/mol
Colour	: Yellow-orange.
Odour	: No data available
Odour threshold	: No data available
Refractive index	: No additional information available
pH	: No data available
Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: 50 - 52 °C
Freezing point	: No data available
Boiling point	: 80 - 85 °C @ 0.2 mm Hg
Flash point	: 62 °C
Auto-ignition temperature	: 179 - 198 °C
Decomposition temperature	: No data available
Flammability (solid, gas)	: Flammable solid.
Vapour pressure	: < 0.1 mm Hg @ 25°C
Relative vapour density at 20 °C	: > 1
Relative density	: > 1
Solubility	: Insoluble in water. Reacts with water.
Log Pow	: No data available
Log Kow	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available
Explosive limits	: No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

No additional information available

10.2. Chemical stability

Stable in sealed containers stored under an inert atmosphere.

10.3. Possibility of hazardous reactions

Reacts with water and moisture in air.

10.4. Conditions to avoid

Heat. Sparks. Open flame.

10.5. Incompatible materials

Acids. Alkalis. Peroxides. Oxidizing agent.

10.6. Hazardous decomposition products

Organic acid vapors.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity	: Not classified
Skin corrosion/irritation	: Not classified
Serious eye damage/irritation	: Not classified
Respiratory or skin sensitisation	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
Reproductive toxicity	: Not classified
STOT-single exposure	: Not classified
STOT-repeated exposure	: Not classified
Aspiration hazard	: Not classified
Symptoms/effects after inhalation	: May cause irritation to the respiratory tract.

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Symptoms/effects after skin contact : May cause skin irritation.
Symptoms/effects after eye contact : May cause eye irritation.
Symptoms/effects after ingestion : No information available.

SECTION 12: Ecological information

12.1. Toxicity

Acute aquatic toxicity : Not classified
Chronic aquatic toxicity : Not classified

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

No additional information available

12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Other adverse effects

Other adverse effects : This substance may be hazardous to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Sewage disposal recommendations : Do not dispose of waste into sewer.
Product/Packaging disposal recommendations : Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to licensed waste disposal facility.
Ecology - waste materials : Avoid release to the environment.

SECTION 14: Transport information

14.1. UN number

In accordance with ADR / RID / IMDG / IATA / ADN

14.1. UN number

UN-No. (ADR) : 1325
UN-No. (IMDG) : 1325
UN-No. (IATA) : 1325
UN-No. (ADN) : 1325
UN-No. (RID) : 1325

14.2. UN proper shipping name

Proper Shipping Name (ADR) : FLAMMABLE SOLID, ORGANIC, N.O.S.
Proper Shipping Name (IMDG) : FLAMMABLE SOLID, ORGANIC, N.O.S.
Proper Shipping Name (IATA) : Flammable solid, organic, n.o.s.
Proper Shipping Name (ADN) : FLAMMABLE SOLID, ORGANIC, N.O.S.
Proper Shipping Name (RID) : FLAMMABLE SOLID, ORGANIC, N.O.S.
Transport document description (ADR) : UN 1325 FLAMMABLE SOLID, ORGANIC, N.O.S. (VINYLFERROCENE), 4.1, III, (E)
Transport document description (IMDG) : UN 1325 FLAMMABLE SOLID, ORGANIC, N.O.S. (VINYLFERROCENE), 4.1, III
Transport document description (IATA) : UN 1325 Flammable solid, organic, n.o.s. (VINYLFERROCENE), 4.1, III
Transport document description (ADN) : UN 1325 FLAMMABLE SOLID, ORGANIC, N.O.S. (VINYLFERROCENE), 4.1, III
Transport document description (RID) : UN 1325 FLAMMABLE SOLID, ORGANIC, N.O.S. (VINYLFERROCENE), 4.1, III

14.3. Transport hazard class(es)

ADR

Transport hazard class(es) (ADR) : 4.1
Danger labels (ADR) : 4.1



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IMDG

Transport hazard class(es) (IMDG) : 4.1
Danger labels (IMDG) : 4.1



IATA

Transport hazard class(es) (IATA) : 4.1
Hazard labels (IATA) : 4.1



ADN

Transport hazard class(es) (ADN) : 4.1
Danger labels (ADN) : 4.1



RID

Transport hazard class(es) (RID) : 4.1
Danger labels (RID) : 4.1



14.4. Packing group

Packing group (ADR) : III
Packing group (IMDG) : III
Packing group (IATA) : III
Packing group (ADN) : III
Packing group (RID) : III

14.5. Environmental hazards

Dangerous for the environment : No
Marine pollutant : No
Other information : No supplementary information available

14.6. Special precautions for user

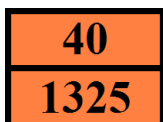
- Overland transport

Classification code (ADR) : F1
Special provisions (ADR) : 274
Limited quantities (ADR) : 5kg
Excepted quantities (ADR) : E1
Packing instructions (ADR) : P002, IBC08, LP02, R001
Special packing provisions (ADR) : PP40

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Mixed packing provisions (ADR) : MP10
Portable tank and bulk container instructions (ADR) : T1
Portable tank and bulk container special provisions (ADR) : TP33
Tank code (ADR) : SGAV
Vehicle for tank carriage : AT
Transport category (ADR) : 3
Special provisions for carriage - Bulk (ADR) : VC1, VC2
Hazard identification number (Kemler No.) : 40
Orange plates :



Tunnel restriction code (ADR) : E
EAC code : 1Z

- Transport by sea

Special provisions (IMDG) : 223, 274, 915
Limited quantities (IMDG) : 5 kg
Excepted quantities (IMDG) : E1
Packing instructions (IMDG) : P002
IBC packing instructions (IMDG) : IBC08
IBC special provisions (IMDG) : B3
Tank instructions (IMDG) : T1
Tank special provisions (IMDG) : TP33
EmS-No. (Fire) : F-A
EmS-No. (Spillage) : S-G
Stowage category (IMDG) : B

- Air transport

PCA Excepted quantities (IATA) : E1
PCA Limited quantities (IATA) : Y443
PCA limited quantity max net quantity (IATA) : 10kg
PCA packing instructions (IATA) : 446
PCA max net quantity (IATA) : 25kg
CAO packing instructions (IATA) : 449
CAO max net quantity (IATA) : 100kg
Special provisions (IATA) : A3
ERG code (IATA) : 3L

- Inland waterway transport

Classification code (ADN) : F1
Special provisions (ADN) : 274
Limited quantities (ADN) : 5 kg
Excepted quantities (ADN) : E1
Equipment required (ADN) : PP
Number of blue cones/lights (ADN) : 0

- Rail transport

Classification code (RID) : F1
Special provisions (RID) : 274
Limited quantities (RID) : 5kg
Excepted quantities (RID) : E1
Packing instructions (RID) : P002, IBC08, LP02, R001
Special packing provisions (RID) : B3
Mixed packing provisions (RID) : MP10
Portable tank and bulk container instructions (RID) : T1
Portable tank and bulk container special provisions (RID) : TP33

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Tank codes for RID tanks (RID)	: SGAV
Transport category (RID)	: 3
Special provisions for carriage – Packages (RID)	: W1
Special provisions for carriage – Bulk (RID)	: VC1, VC2
Colis express (express parcels) (RID)	: CE11
Hazard identification number (RID)	: 40

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

No REACH Annex XVII restrictions

VINYLFERROCENE is not on the REACH Candidate List

VINYLFERROCENE is not on the REACH Annex XIV List

VINYLFERROCENE is not subject to REGULATION (EU) No 649/2012 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 4 July 2012 concerning the export and import of hazardous chemicals.

VINYLFERROCENE is not subject to Regulation (EC) No 850/2004 of the European Parliament and of the Council of 29 April 2004 on persistent organic pollutants and amending Directive 79/117/EEC

15.1.2. National regulations

Germany

12th Ordinance Implementing the Federal Immission Control Act - 12.BImSchV : Is not subject of the 12. BImSchV (Hazardous Incident Ordinance)

Netherlands

SZW-lijst van kankerverwekkende stoffen : The substance is not listed

SZW-lijst van mutagene stoffen : The substance is not listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Borstvoeding : The substance is not listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Vruchtbaarheid : The substance is not listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Ontwikkeling : The substance is not listed

Denmark

Class for fire hazard : Class III-1

Store unit : 50 liter

Classification remarks : Flammable according to the Danish Ministry of Justice; Emergency management guidelines for the storage of flammable liquids must be followed

15.2. Chemical safety assessment

No additional information available

SECTION 16: Other information

Abbreviations and acronyms:

Abbreviations: ND: Not Determined, No Data; NA: Not Applicable; LD: Lethal Dose; LC: Lethal Concentration; ATE: Acute Toxicity Estimates; H: hour; °: °C unless otherwise stated; mm: millimeters Hg, torr; PEL: permissible exposure level; TWA: time weighted average; TLV: threshold limit value; TG: Test Guideline; NIOSH: National Institute for Occupational Safety and Health; IARC: International Agency for Research on Cancer; NTP: National Toxicology Program; HMIS: Hazardous Material Information System; CAS No.: Chemical Abstract Service Registration Number; EC No.: European Commission Registration Number; EC Index No.: European Commission Index Number; OECD: The Organisation for Economic Co-operation and Development; GHS: The Globally Harmonized System of Classification and Labelling; APF: Assigned Protection Factor

Other information : Prepared by safety and environmental affairs.

Full text of H- and EUH-statements:

Flam. Sol. 2	Flammable solids, Category 2
H228	Flammable solid.

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Safety Data Sheet

SDS EU (REACH Annex II) - Custom

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