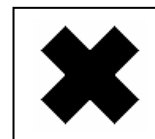


1 – Manufacturer and product identification

1.1 – Registered name: EDMfluid 113-S

1.2 – Manufacturer: STEELFLUID S.r.l.
Via Cecchi, 9/6
16129-Genova
Tel. +39010-540691 Fax +39010-5451087



Xn

1.3 – Telephone: +39010-540.691

1.4 – E-mail address: steelfluid@steelfluid.it

1.5 – Emergency telephone number: +39010-540.691

1.6 – To be used as: Dielectric fluid for die-sinking EDM

1.7 – Date of issue: 29/10/2004

2 - Chemical composition/Ingredients information

Contains substances known to be hazardous to health or subject to exposure limitations according to directive no. 67/548/CEE and updates:

name	cas	einesc	%	hazard warning	symbols
N-PARAFFINS C5-C20	64771-72-8	265-233-4	99,0÷100	R65-R66	Xn

R65: Harmful: may cause lung damage if swallowed.

R66: Repeated exposure may cause skin dryness or cracking

Note H applicable. Hazardous characteristics classed according to annex 1. Further classification volunteered for those hazards not listed.

Note 4 of annex 1 applicable. Kinematic viscosity at 40 °C < 7cSt.

3 - Risks identification

This product is classed as hazardous. Classification: Xn R65 – R66.

HEALTH HAZARDS: It may cause lung damage by breathing if accidentally ingested, being a low viscosity hydrocarbon. Repeated and prolonged exposure to high vapour or fumes concentrations may cause vertigo, headaches, dizziness and eye, nose and throat irritation. Repeated exposure may cause skin dryness or chafing.

CHEMICAL AND PHYSICAL HAZARDS / FIRE AND EXPLOSION RISK: The product may generate flammable mixtures, or burn, only when heated to a temperature equal or above its flash point. The product may accumulate electrostatic charges, which, when freed, will start fires.

4 – First aid procedure

4.1 – General measures

Contact a doctor in case of accident, giving all the information found on the label and in this specifications sheet. Please remember that any medicinal and medical equipment must be administered by medical personnel only. Please also remember that, in case of accident, first aid must be delivered by properly qualified personnel to avoid complications or damages to the casualty.

4.2 – If the product is inhaled

In case of inhalation of vapours, take the casualty away from the contaminated area, using adequate respiratory tract protection. If breathing is irregular or stops altogether, administer resuscitation. Keep the casualty still. Contact a doctor.

4.3 – Accidental contact with the eyes

Rinse well with water in case the product comes into contact with the eyes. If irritation occurs, contact a doctor.

4.4 – Accidental contact with the skin

Take the casualty away from the contaminated area and remove soiled clothing. If the product accidentally comes into contact with the skin, wash well with soap and water.

4.5 – If the product is ingested

In case the product is accidentally ingested do not drink, **do not induce vomiting**, and call a doctor immediately.

5 – Fire prevention

5.1 – To extinguish a fire

In case of fire or presence of the product in a fire, follow this procedure:

- to extinguish the fire use powder, foam or carbon dioxide
- use water to avoid overheating of containers exposed to the fire.

5.2 – Inadequate fire extinguishing means

There are no particular contraindications to the use of any of the following: powder, foam, carbon dioxide, halon, sand.

5.3 – Risks from combustion of the product

Should the product be in a fire or an explosion, do not breathe the fumes. Incomplete combustion may generate CO. Complete combustion may generate water, carbon monoxides (TLV-TWA: 57mg/m³) and, in lesser measure, mineral salts.

5.4 – Protective equipment for the fire fighters

Equip the fire fighting personnel with the following:

- full flash barrier suit
- helmet with eye shield or shielded hood
- heat proof gloves
- heat proof shoes
- breathing apparatus or gas mask
- organic vapours gas mask with filter for the risks described above, according to the fire type and place (if the fire occurs in an open or confined space), etc..
- suitable fire protective equipment.

6 – Accidental spillage procedure

6.1 – Individual measures

In case of accidental spillage, use the following protective measures:

- protective goggles, eye shield, gloves, boots and aprons
- organic vapours gas mask
- do not breathe fumes, do not smoke.

6.2 – Environment protection

In case of accidental spillage:

- stop or intercept the spillage and proceed to contain and collect the product following the indications set out at item 6.3 below
- keep unauthorised people away
- avoid or reduce product spillage in the ground and in the environment
- extinguish all open flames and possible sources of ignition. Do not smoke
- collect polluted water or soil in appropriate containers to send for proper waste disposal
- if the product has reached waterways or drainage systems, or has contaminated the ground or the vegetation, report to the authority in charge. Do employ measures to reduce effects on the water-bearing stratum.

6.3 – Containing and collecting spillage

To contain and collect spillage, please follow the procedure below:

- use protective means described at item 6.1
- collect spillage in sealed containers
- contain and soak up the spillage with inert absorbent materials (soil, sand,...)
- call an expert on disposal according to national legislation
- see section 4 “First Aid procedure” and section 10 “Stability and reactivity”.

7 – Storage and handling of product

7.1 - Handling

When handling the product, use protective means according to item 8 of this specifications sheet and the following procedures:

- do not smoke, eat or drink when handling the product
- avoid frequent and prolonged contact with the skin. Do not breathe the vapours
- do not handle in areas where naked flames, sparks or other ignition sources are present
- do not dispose of waste in the sewage system.



7.2 – Storage

Please follow the cautionary measures set out below:

- keep in mind the physical-chemical properties of the product to avoid interaction with other products (see item 10 of the present safety data sheet)
- keep the containers well sealed and stored in adequately ventilated areas.

Suitable materials and coatings: carbon steel, stainless steel, polythene, polypropylene, polyester, Teflon.

Unsuitable materials and coatings: natural resins, butanol resin, EPDM, polystyrene.

Compatibility with plastics may vary, please check before using.

Containers normally employed for transportation: tankers, tank lorries, drums, canisters.

The containers, including the empties, must be stored in well ventilated areas at temperatures between 10 °C and 50 °C and with safety catch on.

OTHER WARNINGS: The container is still a danger even when emptied of the product contained. Please keep to the precautions set out.

8 – Exposure control/individual protection

8.1 – General precautions

Use the product according to this specifications sheet, particularly with regards to item 7.1. Use protective means according to the following items 8.3, 8.4 and 8.5. It is recommended to employ mechanical ventilation systems when the product is kept in confined spaces, as well as when it is heated to temperatures above normal room temperature.

The Safety Data Sheet (SDS) contains information regarding the chemical nature of a dangerous substance or preparation, and the possible negative effects it may cause.

IPM stands for Individual Protective Measure that must be employed whenever a “Residual Risk” is present. The “Residual Risk” pertains to working conditions, and it’s closely related to the conditions to be found in the workplace and to the organisation of the work itself.

The IPM references contained in the Safety Data Sheet may only be of an informative nature: therefore, they may not go beyond limitations arising from responsibility charges.

The EMPLOYER is fully in charge of choosing the IPM suitable and appropriate to the conditions of risk in the workplace.

8.2 – Concentration limits in biological and working environments

Available data shows that the product does not contain any substance with exposure limitations.

Data relating to TLV values is not available; however, it is recommended not to exceed exposure above 300ppm.

In open circuit systems where contact with the product is possible, personnel must wear protective goggles, long-sleeved uniforms and waterproof gloves. Where the product concentration in air is above the limits set out in this paragraph, and where the plant type, the working practices and other means to limit exposure are not sufficient, suitable respiratory tract protection is necessary.

PERSONAL HYGIENE:

provide suitable washing facilities in the working environment. Change coveralls, clothes worn under the coveralls, and shoes, whenever they become soaked by the product. Protective clothing, usefully employed to minimize contact with the preparation, may be source of contamination if continued to wear after being soaked with the product.

WORKING PRACTICE:

Use and choice of protective wear is relative to the risks posed by the product, by working conditions and the processing methods. As minimal protection, it is generally recommended to use protective wrap-around goggles, coveralls to protect the arms, legs and body. Each visitor to the area where product handling takes place must also wear protective wrap-around goggles.

TO LIMIT EXPOSURE:

keep clean the workplace, follow good working practices and, when product is handled by operators with dry skin, or in cold places, follow the instructions set out in the item below.

Change protective gloves (made of PVC, polyethelene, neoprene- non hevea rubber) when wear, tear or contamination is present.

Where concentration of the product in air exceeds the limits set out in this paragraph, it is recommended to wear half-face filter mask to protect from inhalation overexposure. The filter used may vary according to the types and quantities of chemicals handled in the workplace.

SKIN PROTECTION:

personal cleanliness is the most effective of protections. Do not use abrasives or solvents. After work, it is recommended to use reconditioning creams to restore the lipidic layer in the skin, especially in case of dry skin sufferers and during the winter months. Humidity and low temperatures may cause grazes, making personnel more vulnerable to chemicals handled.

8.3 – Respiratory tract protection

When handling heated, employ the following protection means:

- organic vapours gas mask with A2 class filter to be used if O₂ values are at > 17%

8.4 – Hands protection

When handling the product, protect the hands as follows:

- wear solvent resistant gloves.



8.5 – Eye protection

When handling the product, protect the eyes as follows:

- wear protective wrap-around goggles

8.6 – Skin protection

When handling the product, wear:

- suitable protective clothing.

8.7 – Further information

If the product is overheated, it is good practice to employ suitable individual protective measures.

9 – Chemical and physical characteristics

9.1 Physical state (at 20 °C and at 101.3 kPa) : Clear colourless liquid

9.2 - Odour : odourless

9.3 - pH: N.A.

9.4 – Boiling point from: 250 °C (IBP)

9.5 – Pour point: 0 °C

9.6 – Flash point : >110 °C

9.7 - Flammability (solids, gas) : Not applicable (the product is liquid)

9.8 – Self-flammability : Self-ignition temperature > 200°C. Flammability limits in air % vol.: 0.5-5

9.9 – Explosive properties: None

9.10 – Combustive properties: None

9.11 – Vapour pressure: <1kPa at 20°C

9.12 – Relative density: 0.78

9.13 - Solubility: Water solubility: Insoluble
Lipo-solubility: soluble with main organic solvents

9.14 – Distribution coefficient n-tetrahydrolinalool/water: N.D.

9.15 – Other parameters

Colour Saybolt (ASTM D 156): > +30

Colour Hazen (ASTM D1209): 5

Pour point (ASTM D 97): 0°C

Viscosity at 20°C (ASTM D 445): 3,9cSt

Density at 15°C (ASTM D 4052) : 0.781kg/l

Content in water (ASTM D 1533): <100ppm

Doctor test (DIN 51765): negative

Copper corrosion (ASTM D 130): 1

N.B.: The data on this specifications sheet are average values, not specifications limits.

10 - Stability and reactivity

10.1 - Stability

The available data does not show any special risks.

10.2 – Conditions to avoid

Avoid the following:

- exposure of product to heat, sparks or naked flames

10.3 – Incompatible materials

The available data does not show any special materials or substances incompatible with the product. However, it is best to avoid contact with oxidising mineral acids.

10.4 – Dangerous decomposition materials

The available data shows that the product does not generate dangerous decomposition materials.

The product generates carbon monoxide by combustion (CO if incomplete combustion occurs).

11 – Toxicity information

11.1 – Toxicity from inhalation

Concentration of vapours above the recommended exposure limits are eye and respiratory tract irritant; they may also cause headaches and dizziness, are anaesthetics, and may affect the central nervous system.

11.2 – Toxicity from ingestion

Even small quantities of the liquid in the respiratory tract, either due to ingestion or to vomiting, may cause pneumonia or pulmonary oedema. Minimum toxicity index.

DL50 oral: >5000mg/kg (rat)

11.3 – Toxicity from skin contact

Frequent and prolonged exposure may scour the skin, causing discomfort and dermatitis.

DL50 cutaneous: >2000mg/kg rabbit

11.4 – Toxicity from eye contact

The available data does not show any special risks. The product will cause discomfort to the eyes without actual damage to the ocular tissue.

11.5 – Sensitisation effects

The available data does not show any special risks from sensitisation.

11.6 – Prolonged exposure effects

The available data does not show any special risks from prolonged exposure.

11.7 – Carcinogenic effects

The available data does not show any special risks of carcinogenic effects.

11.8 - Mutagenic/teratogenic effects

The available data does not show any special risks of mutagenic/teratogenic effects.

11.9 – Special risks from components

The available data does not show any special risks from individual components.

12 – Environmental information

This product is not classed as hazardous, according to Directive no. 1999/13/EC.

12.1 – Possible product toxicity

Follow good working practices when using the product, avoiding dispersion in the environment.

Toxicity in water:

LC50 fish 96h : ineffective at saturation strength

EC50 Daphnia 48h : ineffective at saturation strength

EC50 seaweed 48h : ineffective at saturation strength

12.2 – Persistency and degradability

Photodegradability: $t_{1/2} < 0.6$ dd (OECD test)

Total biodegradability: easily biodegradable (OECD301F)

No data is available on the final preparation's persistency.

12.6 - Ecotoxicity

No acute toxicity of water organisms is expected from maximum water solubility of the product. No long term damage to water organisms is expected.

13 – Waste disposal

13.1 – Disposal of the product or of its residues

The product as is must be classed as: **special hazardous waste**. Reclaim if possible. This product CAN NOT be disposed of in dumps and/or public drainage systems, canals, natural waterways or rivers. The product does not generate cinders, and may be burnt in properly fitted incinerator plants according to legislation in force. Product waste or contaminated waste must be classed, stored and sent to a good waste disposal plant according to national and regional by-laws. Handling and storage of waste by-products must be carried out according to procedures set out at items 6 and 7 of this specifications sheet.

13.2 – Container disposal

All containers, even when completely empty, must not be disposed of in the environment. The containers must be properly treated before sending to disposal plants. The containers still containing product residues must be classed, stored and sent to a suitable waste disposal plant according to national and regional by-laws.



13.3 – European Waste Catalogue Code

The product may be coded differently according to its use. It is not possible to supply general information. The product as is does not contain halogenated compounds.

The consumer must be aware that the conditions of use may affect the waste code of the product after use. Please refer to directive number 2001/118/EC for waste coding.

14 – Information on transport

14.1 - Precautions

The product has not been classed dangerous goods by the Expert Committee of the United Nations (ECOSOC).

14.2 – Road transportation

The product does not represent a hazard for road transportation.

14.3 – Rail transportation

The product does not represent a hazard for rail transportation.

14.4 – Sea transportation

The product does not represent a hazard for sea transportation.

14.5 – Air transportation

The product does not represent a hazard for air transportation.

15 - Regulations

15.1 – Labels according to CEE/67/548 provisions and updating

SYMBOL: Xn-NOXIOUS

R WORDING: R65:Harmful: may cause lung damage if swallowed
R66: Repeated exposure may cause skin dryness or cracking

S WORDING: S23: Do not breathe gas/fumes/vapours/spray
S24: Avoid contact with skin
S62: If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label.

Labelling and classification: CONTAINS ALKANES

National legislation: According to the following provisions where applicable
Presidential Decree no. 175/88 and further updates
Presidential Decree no. 303/56 of 19/05/1956
Ministerial circulars nos. 45 and 61
Legislation Decree no. 626/94 and further updates

| National legislation : Further directives in force:

- threshold limit values (TLV) and biological exposure indicator (BEI) ACGIH 1998.
- decree no. 212 of 30/07/1990) (published on : **Gazzetta Ufficiale Italiana** no. **181** of **04/08/1990**) working health and safety regulations (Presidential decree no. 303/56 of 19/03/1956) (published on : **Gazz. Uff. Suppl. Ordin.** no. **105** of **30/04/1956**).
- Occupational disease regulations and prospects (Presidential decree no. 336 of 13/04/1994) (published on: **Gazzetta Ufficiale Italiana** no. **131** of **07/06/1994**).
- Safety in work environment (legislative decree no. 626 of 19/09/94) (implementation of directives nos. [89/391/CEE](#), [89/654/CEE](#), [89/655/CEE](#), [89/656/CEE](#), [90/269/CEE](#), [90/270/CEE](#), [90/394/CEE](#) and [90/679/CEE](#), [93/88/CEE](#), [97/42/CE e 1999/38/CE](#) on improving the health and safety conditions of personnel *during* work) (published on: **Gazz. Uff. Suppl. Ordin.** no. **265** of **12/11/1994**)
- Significant accident risks (Severo bis) (legislative decree no. 334 of 17/08/1999) (implementation of directive [96/82/CE](#) on significant accident risk control in relation to specific hazardous substances) (published on: **Gazz. Uff. Suppl. Ordin.** no. **228** of **28/09/1999**).
- Regulations on emissions (Ministerial decree of 12/7/90) (Guidelines for the containment of industrial plant emissions and fixed minimum emission values) (published on: **Gazz. Uff. Suppl. Ordin.** no. **176** of **30/07/1990**)
- Regulations on air pollution (Ministerial decree of 12/7/90- Guidelines for the containment of industrial plant emissions and fixed minimum emission values and of Presidential decree of 25/07/1991- published on: **Gazzetta Ufficiale Italiana** no. **175** of **27/07/1991**).



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- Regulations on water conservation (law by decree no. 152 of 11/5/99) (Provisions on water protection from pollution and implementation of directive no. [91/271/CEE](#) on urban waste treatment and of directive no. [91/676/CEE](#) on water protection from pollution by nitrates agricultural origin) (published on: **Gazz. Uff. Suppl. Ordin.** no. **124** of **29/05/1999**).
- Regulations on hazardous waste disposal and transportation (legislative decree no. 22/97-Implementation of directives nos. [91/156/CEE](#) on waste, [91/689/CEE](#) on hazardous waste and [94/62/CE](#) on packing and packing waste products- published on: **Gazz. Uff. Suppl. Ordin.** no. **38** of **15/02/1997** and legislative decree no. 389/97-Revisions and additions to the legislative decree of [5 febbraio 1997, no. 22](#), on waste products, hazardous waste, packing and packing waste products - published on: **Gazzetta Ufficiale Italiana** no. **261** of **08/11/1997**).
- ADR/RID Road transport regulations– ministerial decree of 4/9/1996- Implementation of directive no. [94/55/CE](#) of the Council for closer legislation of Member States on hazardous goods road transportation (published on: **Gazz. Uff. Suppl. Ordin.** no. **282** of **02/12/1996**) and implementation thereof.
- Ministerial Circulars nos. 45 and 61 and implementation thereof.
- Consolidation Act on Classification, Packing and Labelling of hazardous goods (incl. acceptance of CE directives up to the XXII update): Ministerial decree 28/4/1997- implementation of [Art. 37](#), commas 1 and 2, of the legislative decree of 3 February 1997, no. 52, on classification, packing and labelling of hazardous goods (published on: **Gazz. Uff. Suppl. Ordin.** no. **192** of **19/08/1997**).
- Regulations on classification, packing and labelling of hazardous goods (law by decree no. 285 of 16/07/1998- Implementation of Community Directives on classification, packing and labelling of hazardous goods, according to Article no. 38 of law no. 128, 24 April 1998) (published on: **Gazzetta Ufficiale Italiana** no. **191** of **18/08/1998**).
- Acceptance of XXIV update CE (Ministerial decree no. 175 of 07/07/1999- Provisions on classification, packing and labelling of hazardous goods in acceptance of Directive no. 98/73/CE) (published on: **Gazz. Uff. Suppl. Ordin.** no. **226** of **25/09/1999**).
- Regulations on drawing up of Safety Data Sheets (incl. acceptance of up to Directive CE 93/112) (Ministerial decree of 4/4/97- Implementation of [Art. 25](#), commas 1 and 2, of legislative decree of 3 February 1997, no. 52, on classification, packing and labelling of hazardous goods, on safety data sheet information) (published on: **Gazzetta Ufficiale Italiana** no. **169** of **22/07/1997**).
- Acceptance of XXIV and XXV updates of CE (Ministerial decree no. 10/04/2000-Acceptance of Directives nos. [98/73/CE](#) and [98/98/CE](#), respectively on the XXIV and XXV update to Directive no. 67/548/CEE) (published on: **Gazz. Uff. Suppl. Ordin.** no. **205** of **02/09/2000**).
- **CEE/CEEA/CE directive no. 45 of 31/05/1999**: European Parliament and Council Of Europe directive of 31 May, 1999, on harmonisation of legislation for all Member States on classification, packing and labelling of hazardous goods.
- **The substance has been registered according to Decree no.65 of 14 March 2003 (replacing the Ministerial Decree of 19/04/2000) with the following code: AUT-6.**
- **Ministerial Decree** dated **26/01/2001**-provisions on classification, packing and labelling of hazardous goods in acceptance of directive [2000/32/CE](#) (containing XXVI update to technical progress of directive no. 67/548/CEE).
- **Ministerial Decree** dated **11/04/2001**- acceptance of directive [2000/33/CE](#) with XXVII update to technical progress of directive no. 67/548/CEE, on classification, packing and labelling of hazardous goods.
- **European Union Directive** [2001/59/CE](#) of 06/08/2001, with XXVIII update to technical progress of directive no. 67/548/CEE, on classification, packing and labelling of hazardous goods.
- **European Union Directive** [2001/58/CE](#) of 27/07/2001, containing the second revision to include amendments to the directive 91/155/CE defining and fixing the information modalities relating to hazardous goods according to Art. 4 of directive no. 1999/45/CE.
- **Legislative Decree of 14 March, 2003, no.65** – implementation of Directives nos. 1999/45/CE and 2001/60/CE on classification, packing and labelling of hazardous goods.
- **Decree of 16 January 2004, no. 44** – implementation of Directive no. 1999/13/CE on limitations of emissions by volatile organic compounds of some industrial activities, according to Art. 3, comma 2, of the Presidential Decree no. 203 of 24 May 1988.

15.2 – Sale and use limitations

There are no limitations on the sale and/or use of the components.



16 - Further information

Limitations of use: only for use in industrial manufacturing
Safety data sheet distribution: the information contained herein must be made available to all those who handle the product.

HAZARD WARNINGS GLOSSARY

R65 – Harmful: may cause lung damage if swallowed

R66 – Repeated exposure may cause skin dryness or cracking

NC code: 2710 1941

For technical informations: Tel. +39010-540.691

All information on this specifications sheet is according to our knowledge and our experience of the product and must not be considered exhaustive. It relates to the product as per specifications. If mixed or combined with other products, please make sure this cannot result in new risks or dangers.

The consumer is not, in any case, exempt from observing the regulations in force, relating either to the administrative or regulatory use of the product, or to work hygiene and safety practices.

This specifications sheet was prepared using ESWIN, and the SINTALEX database.

N.B.: Classed according to Decree no. 31/07/1934: the preparation must be classed as fuel Category C (flash point above 65°C) according to title II, par. 1 of the above Decree.

Revision summary:

This safety data sheet has been revised at section/s: 1, 2, 3, 7, 8, 9, 12, 15, 16 since 29th October, 2004.

A vertical bar (|) on the left margin indicates a new entry from the previous version. If a section is indicated but the bar is not present the text has been erased.

SHEET VERSION n.5 of 29/10/2004

This version pre-empts all preceding specifications sheets.

SHEET PRINTED ON 09/11/2004