SAFETY DATA SHEET

FORMI® NDF

Formi ® NDF contains sodium formate and formic acid

1. Identification of the substance / preparation and company / undertaking

Product name	Formi ® NDF
Chemical product name	Preparation of sodium formate and formic acid
Synonyms	Sodium diformate
Supplier	ADDCON EUROPE GmbH Kaiserstraße 1 D-53113 Bonn
Emergency Telephone number	+49 (0) 228 919100
e-mail-address of person responsible for this SDS	thomas.ohlmann@addcon.net
Recommended use	Preservative, feed additive

2. Hazards identification

The preparation is classified as dangerous according to directive 67/548/EEC and its amendments.

Classification	Xi, irritating
Human health hazards	Risk for serious damage to eyes.
Environmental hazards	Based on the available data of this product no hazardous properties are known.
Physical / chemical hazards	Based on the available data of this product no hazardous properties are known.

3. Composition / information on ingredients

Substance / preparation : preparation

Chemical name	CAS no.	%	EC- no. *	classification
Sodium formate See section 16 for the full text of the R-phrases declared above.	141-53-7	56	205-488-0	
Formic acid See section 16 for the full text of the R-phrases declared above.	64-18-6	38	200-579-1	C, R 35

*** EC-No. means EINECS- or ELINCS-number.**

4. First-aid measures

Effects and symptoms

Inhalation	Over-exposure by inhalation (dust) may cause respiratory irritation (coughing).
Ingestion	Ingestion of the product may cause irritation and discomfort.
Skin contact	There is no known acute effect after over-exposure to this product.
Eye contact	irritant

First-aid measures

General	Move exposed person to fresh air. Remove contaminated clothing.
Inhalation	If inhaled, remove to fresh air. Obtain medical attention if symptoms occur.
Ingestion	If swallowed, rinsed mouth with water (only if the person is conscious). Obtain medical attention if symptoms occur.
Skin contact	Rinse with plenty of running water. Remove contaminated clothes and shoes. Obtain medical attention if symptoms occur.
Eye contact	Rinse immediately with plenty of running water. Consult medical attention for eyes immediately.
First-aid facilities:	No special recommendations.

5. Fire-fighting measures

Extinguishing media

Small fire suitable	Use dry chemical or CO_2.
Large fire suitable	Use water, foam or dry chemical powder-
Unusual fire / explosion hazards	Based on the available data of this product no hazardous properties are known.
Hazardous thermal decomposition products	In case of fire, may produce hazardous decomposition products such as carbon monoxide, carbon dioxide, sodium oxide.

5. Fire-fighting measures

Special fire-fighting procedures	No special measures required.
Protection of fire-fighters	Wear suitable protective clothing. Self-contained breathing apparatus.

6. Accidental release measures

Personal precautions	Ensure good ventilation. Avoid formation of dust and inhalation of dust. See protective measures under point 7 and 8.
Environmental precautions	Do not allow to enter drains/surface water/ground-water.
Clean-up methods	
Small spill and leak	Wash with plenty of water.
Large spill and leak	Collect spill in suitable containers by mechanical means. Avoid dust formation.

Note: See section 8 for personal protective equipment and section 13 for waste disposal.

7. Handling and storage

Handling	Use with adequate ventilation. No special technical protective measures are necessary.
Storage	Store in a dry, cool and well-ventilated area (due to limited adsorption properties). The product has been produced and packaging in accordance with strict quality practices. Maintain this quality level by storing this product away from other chemicals.
Remarks	The product should be handled with the care usual when dealing with chemicals.
Packaging materials	
Suitable	Polyethylene or Material, chemical-resistant.

Note: See section 10 for stability and reactivity.

8. Exposure controls / personal protection

Engineering measures	See section 7. No additional measures necessary.
Hygiene measures	When using do not eat, drink or smoke. Wash hands after handling compounds and before eating, smoking and using the lavatory at the end of the day.
Personal protective equipment – Production scale	
Respiratory system	Breathing protection if breathable aerosols/dust is formed. Particle filter with medium efficiency for solid and liquid particles (e.g. EN 143 or 149, Type P2 or FFP2).
Skin and body	Working clothes
Eyes	Safety glasses with side shields.
Hands	Suitable chemical resistant safety gloves (EN 374) also with prolonged, direct contact and other. Supplementary note: The specifications are based on own tests, literature data and information of glove manufacturers or are derived from similar substances by analogy. Due to many conditions (e.g. temperature) it must be considered, that the practical usage of a chemical-protective glove in practice may be much shorter than the determined permeation time.
Recommended material(s)	> 8 hours (breakthrough time): Nitril rubber, butyl rubber, neoprene, Viton, PVC. Replace damaged gloves.

Advice on personal protection is applicable for high exposure levels. Select proper personal protection based on a risk assessment of the actual situation.

9. Physical and chemical properties

Physical state	Powder, crystallic
Colour	white to white-yellow
Odour	faint odour
pH	3.0 – 4.0 (concentration 10%)
Boiling point	Not available.
Melting point	> 80 °C (partially decomposition)
Flash point	Not available.
Lower explosion limit	Not available.
Upper explosion limit	Not available.

9. Physical and chemical properties

Auto-ignition temperature	> 150 °C (Wire basket)
Density (g/cm3)	Not available.
Bulk density	0.8 – 1.0 g/cm³
Solubility in water	soluble
Solubility	Easy soluble in the following materials: cold water. Partially soluble in the following materials: methanol.
Molecular weight	Not available
Minimum ignition energy	Not available.
Dust explosion class	Not available.
Remarks	More detailed information on the physical and chemical properties can be requested from the supplier.

10. Stability and reactivity

Stability	Stable under recommended storage and handling conditions (see section 7).
Conditions to avoid	Exposure to sources of heat, sources of ignition, open flame.
Materials to avoid	Oxidizing substances, inorganic acids
Hazardous decomposition products	In case of fire: see section 5.

11. Toxicological information

Potential acute health effects

Inhalation	Dust may irritate respiratory tract and lungs.
Ingestion	No known significant effects or critical hazards.
Skin contact	No known significant effects or critical hazards.
Eye contact	Risk of serious damage to eyes.

Acute toxicity

Product / ingredient name	Result	Species	Dose	Exposure
Sodium diformate	LD50 oral LD50 dermal	rat rat	> 2000 mg/kg > 5.15 mg/l	- 4 hours

Primary irritation

Product / ingredient name	Test	Species	Evaluation	Method
Sodium diformate	Skin Eye	Rabbit Rabbit	not irritant irritant	EEC 84/449, B4 EEC 84/449, B5

Sensitization	No sensitizing effect admits. [OECD Guideline 406]
Potential chronic health effects	
Chronic effects	No known significant effects or critical hazards.
Carcinogenicity	No known significant effects or critical hazards.
Mutagenicity	The substance was not mutagenic in bacteria.
Teratogenicity	No known significant effects or critical hazards.
Developmental effects	No known significant effects or critical hazards.
Fertility effects	No known significant effects or critical hazards.
Chronic toxicity	No specific data.
Carcinogenicity	No specific data.
Mutagenicity	No mutagenic effect was found in various tests with mammalian cell culture and mammals.

Product / ingredient name	Test	Experiment	Result
Sodium diformate	Ames-Test	In vitro; Bacteria	Negative

Teratogenicity	No specific data.
Reproductive toxicity	The results of animals studies gave no indication of a fertility impairing effect
Conclusion / summary	No indications for carcinogenicity. No indications for reproduction toxicity. The product has not been tested. The statement has derived from products of similar structure and composition.

12. Ecological information

Environmental effects Readily biodegradable. This product shows a low bioaccumulation potential.

Aquatic ecotoxicity

Product / ingredient name	Test	Result	Species	Exposure
Sodium diformate	Mortality	Acute LC50 3500 mg/l	Fish	96 hours
	Mortality	Acute EC50 540 mg/l	Daphnia	48 hours
	Mortality	Acute LC50 >1000 mg/l	Algae	72 hours

Persistence / degradability Readily biodegradable (according to OECD criteria).
Elimination information:
Test method: OECD 301D; EEC 92/69, C.4-E (aerobic), activated sludge, domestic.
Method of analysis: BOD of the ThOD.
Degree of elimination: >90 % (28 d).

Other adverse effects No known significant effects or critical hazards.

AOX The product does not contain organically bound halogens which could lead to an AOX (Absorbable Organically bound Halogens) value in waste water.

Mobility Dissolves readily in water.

13. Disposal considerations

Methods of disposal (waste of residues; contaminated packaging) Waste must disposed of in accordance with national and local environmental regulations. Controlled biodegradation in waste water treatment is possible.

14. Transport information

International transport regulations

Regulatory information	UN - Number	Proper shipping name	class	PG*	Label	Additional information
ADR/RID Class	Not regulated.	-	-	-	-	-
ADNR Class	Not regulated	-	-	-	-	-
IMDG Class	Not regulated	-	-	-	-	-
IATA Class	Not regulated	-	-	-	-	-

PG* : Packing group

15. Regulatory information

EC-regulations According to EU directives 67/548/EEC and 1999/45/EC this product does to labelling as

Xi, irritant

Risk phrases R41 – risk of serious damage to eyes

Safety phrases S25 – avoid contact with eyes
S26 – in case of contact with eyes, rinse immediately with plenty of water and seek medical advice
S39 – wear eye/face protection

Remarks

16. Other information

Full text of R phrases referred to in sections 2 and 3 – United Kingdom (UK) R35 – causes severe burns

Full text of classifications referred to in sections 2 and 3 – United Kingdom (UK) C - corrosive

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Internal code SDB_NDF_E_0002

16. Other information

History

Date of printing	17.08.2009
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Notice to reader

The information contained in the Safety Data Sheet is based on our data available on the data of publication. The information is intended to aid the user in controlling the handling risks; it is not to be construed as a warranty or specification of the product quality. The information may not be or may not altogether be applicable to combinations of the product with other substances or to particular applications.
The user is responsible for ensuring that appropriate precautions are taken and for satisfying them that the data are suitable and sufficient for the product's intended purpose. In case of any unclarity we advise consulting the supplier or an expert.

Training advice	Handling of this substance or preparation is restricted to skilled personal only.
Source of key data	Literature data and/or investigation reports are available through the manufacturer.
Alterations compared to the previous version	Alterations compared to the previous version are marked with a little (blue) triangle.