

Safety Data Sheet

NST INOX flux cored wires

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830
Date of issue: 17/03/2014 Revision date: 30/07/2019 Supersedes: 06/09/2016 Version: 3.0

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

1.1. Product identifier

Product name : NST INOX flux cored wires
Synonyms : NST A-316L / A-309MoL / A-309L / A-308L/FCW A625 / 316LT/309MoLT / 309LT/308LT / 329J3L Duplex / NST 329J3L Duplex / NST 329J3L XLT Duplex

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

Relevant identified uses

Main use category : Professional use
Use of the substance/mixture : Welding wire

Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Norsk Sveiseteknikk AS
Postboks 109, 3301 Hokksund
T + 47 99 27 80 00 - F + 47 32 82 90 19
nst.no

1.4. Emergency telephone number

Country	Official advisory body	Address	Emergency number	Comment
United Kingdom	National Poisons Information Service (Newcastle Unit)	Claremont Place Newcastle-upon-Tyne, Newcastle	+44 191 2606182 +44 191 2606180	Hours of operation: 24hrs

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

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

Skin sensitisation, Category 1 H317
Carcinogenicity, Category 2 H351
Specific target organ toxicity — Repeated exposure, Category 1 H372
Full text of H statements : see section 16

Adverse physicochemical, human health and environmental effects

No additional information available

2.2. Label elements

Alloy. According to EC directives or the corresponding national regulations there is no labelling obligation for this product.

2.3. Other hazards

Other hazards not contributing to the classification : In the smoke emitted by use, there will be an additional risks if inhaled. Intensive exposure to welding fumes may cause lung disease, bronchitis, or worsen already existing inhalation problems. Intensified exposure to manganese (Mn) can damage the central nervous system or worsen existing health problems.

This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII

This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	Conc. (% w/w)	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Iron	(CAS-No.) 7439-89-6 (EC-No.) 231-096-4 (REACH-no) 01-2119462838-24	45 - 90	Not classified
Chromium	(CAS-No.) 7440-47-3 (EC-No.) 231-157-5	10 - 40	Not classified

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titanium dioxide	(CAS-No.) 13463-67-7 (EC-No.) 236-675-5 (REACH-no) 01-2119489379-17	5 - 15	Not classified
Quartz (SiO ₂)	(CAS-No.) 14808-60-7 (EC-No.) 238-878-4 (REACH-no) N/A	5 - 15	Not classified
Nickel (Note S)(Note 7)	(CAS-No.) 7440-02-0 (EC-No.) 231-111-4 (EC Index-No.) 028-002-00-7	5 - 15	Skin Sens. 1, H317 Carc. 2, H351 STOT RE 1, H372
Zirconium compounds (as Zr)	(CAS-No.) 1314-23-4 (EC-No.) 215-227-2 (REACH-no) 01-2119486976-14	3 - 9	Not classified
aluminium(III)oxide	(CAS-No.) 1344-28-1 (EC-No.) 215-691-6 (REACH-no) N/A	2 - 8	Not classified
Molybdenum	(CAS-No.) 7439-98-7 (EC-No.) 231-107-2 (REACH-no) 01-2119472304-43	< 4	Not classified
Manganese	(CAS-No.) 7439-96-5 (EC-No.) 231-105-1 (REACH-no) 01-2119449803-34	< 2.5	Not classified
silicon	(CAS-No.) 7440-21-3 (EC-No.) 231-130-8 (REACH-no) 01-2119480401-47	< 1.5	Not classified

Note 7 : Alloys containing nickel are classified for skin sensitisation when the release rate of 0,5 µg Ni/cm²/week, as measured by the European Standard reference test method EN 1811, is exceeded.

Note S : This substance may not require a label according to Article 17 (see section 1.3 of Annex I) (Table 3.1). This substance may not require a label according to Article 23 of Directive 67/548/EEC (see section 8 of Annex VI to that Directive) (Table 3.2).

Full text of H-statements: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general	: General first aid, rest, warmth and fresh air. Move to fresh air. Call a poison center or a doctor if you feel unwell.
First-aid measures after inhalation	: Move to fresh air. Call a POISON CENTER/doctor if you feel unwell. Artificial respiration if indicated.
First-aid measures after skin contact	: Wash skin with soap and water. Get medical attention if irritation persists after washing. If burned, cool skin with ice or cold water.
First-aid measures after eye contact	: Immediately flush with plenty of water for up to 15 minutes. Remove any contact lenses and open eyes wide apart. Get medical attention if any discomfort continues.
First-aid measures after ingestion	: Rinse nose, mouth and throat with water.

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

Symptoms/effects after inhalation	: Overexposure to welding fumes may affect pulmonary function. Strong exposure to manganese may affect the nervous system.
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4.3. Indication of any immediate medical attention and special treatment needed

Electric shock: Disconnect and turn off the power. If the victim is conscious or has partial loss of consciousness, open the airways. If the breathing has stopped, give artificial respiration. If cardiac arrest, provide heart massage and artificial respiration.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	: Use extinguishing media appropriate for surrounding fire. Foam, carbon dioxide or dry powder.
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5.2. Special hazards arising from the substance or mixture

Fire hazard	: Non flammable.
Hazardous decomposition products in case of fire	: Hazardous decomposition products may be released during prolonged heating like smokes, carbon monoxide and dioxide. Ozone. Oxides of: Iron. Manganese. Titanium. Silicon. Molybdenum (Mo). Boron (B). Chromium. Fluorine (F). Nickel (Ni).

5.3. Advice for firefighters

Protection during firefighting	: Do not enter fire area without proper personal protective equipment, including respiratory protection.
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SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Ensure adequate ventilation, especially in confined areas. Avoid contact with skin and eyes. Do not breathe vapour.

6.1.1. For non-emergency personnel

Protective equipment : Wear appropriate personal protective equipment - see Section 8.

6.1.2. For emergency responders

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

6.2. Environmental precautions

Do not discharge into drains.

6.3. Methods and material for containment and cleaning up

For containment : Collect spillage. Limit spread of spilled material. Collect spillage in containers, seal securely and deliver for disposal according to local regulations.

6.4. Reference to other sections

For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Ensure good ventilation of the work station. Mechanical ventilation or local exhaust ventilation is required. Do not breathe dust, fume, vapours. Avoid contact with skin and eyes. Do not touch electrical parts, such as welding wire and welding machine terminals. Wear appropriate personal protective equipment - see Section 8.

Hygiene measures : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Do not eat, drink or smoke when using this product.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store in a dry place.

Incompatible materials : Acids. Moisture.

Storage temperature : 17 - 25 °C

7.3. Specific end use(s)

No additional data.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Iron (7439-89-6)		
United Kingdom	Local name	Iron salts
United Kingdom	WEL TWA (mg/m ³)	1 mg/m ³ (as Fe)
United Kingdom	WEL STEL (mg/m ³)	2 mg/m ³ (as Fe)
United Kingdom	Regulatory reference	EH40/2005 (Third edition, 2018). HSE

Quartz (SiO ₂) (14808-60-7)		
United Kingdom	Local name	Silica
United Kingdom	WEL TWA (mg/m ³)	0.1 mg/m ³ respirable crystalline
United Kingdom	Regulatory reference	EH40/2005 (Third edition, 2018). HSE

titanium dioxide (13463-67-7)		
United Kingdom	Local name	Titanium dioxide
United Kingdom	WEL TWA (mg/m ³)	4 mg/m ³ respirable 10 mg/m ³ total inhalable
United Kingdom	Regulatory reference	EH40/2005 (Third edition, 2018). HSE

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Chromium (7440-47-3)		
United Kingdom	Local name	Chromium
United Kingdom	WEL TWA (mg/m ³)	0.5 mg/m ³ 0.5 mg/m ³ Chromium (II) compounds (as Cr) 0.5 mg/m ³ Chromium (III) compounds (as Cr)
United Kingdom	United Kingdom (BEI)	10 µmol/mol creatinine Parameter: chromium - Medium: urine - Sampling time: Post shift
United Kingdom	Regulatory reference	EH40/2005 (Third edition, 2018). HSE

Molybdenum (7439-98-7)		
United Kingdom	Local name	Molybdenum
United Kingdom	WEL TWA (mg/m ³)	10 mg/m ³ insoluble compounds (as Mo) 5 mg/m ³ soluble compounds (as Mo)
United Kingdom	WEL STEL (mg/m ³)	20 mg/m ³ insoluble compounds (as Mo) 10 mg/m ³ soluble compounds (as Mo)
United Kingdom	Regulatory reference	EH40/2005 (Third edition, 2018). HSE

Nickel (7440-02-0)		
United Kingdom	Local name	Nickel
United Kingdom	WEL TWA (mg/m ³)	0.1 mg/m ³ and its inorganic compounds (except nickel tetracarbonyl): water-soluble nickel compounds (as Ni) 0.5 mg/m ³ and its inorganic compounds (except nickel tetracarbonyl): nickel and water insoluble nickel compounds (as Ni)
United Kingdom	Remark (WEL)	Sk (Can be absorbed through the skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity), Carc (Capable of causing cancer and/or heritable genetic damage (nickel oxides and sulphides)), Sen (Capable of causing occupational asthma (nickel sulphate))
United Kingdom	Regulatory reference	EH40/2005 (Third edition, 2018). HSE

Zirconium compounds (as Zr) (1314-23-4)		
United Kingdom	Local name	Zirconium
United Kingdom	WEL TWA (mg/m ³)	5 mg/m ³ compounds (as Zr)
United Kingdom	WEL STEL (mg/m ³)	10 mg/m ³ compounds (as Zr)
United Kingdom	Regulatory reference	EH40/2005 (Third edition, 2018). HSE

aluminium(III)oxide (1344-28-1)		
United Kingdom	Local name	Aluminium oxides
United Kingdom	WEL TWA (mg/m ³)	10 mg/m ³ inhalable dust 4 mg/m ³ respirable dust
United Kingdom	Regulatory reference	EH40/2005 (Third edition, 2018). HSE

silicon (7440-21-3)		
United Kingdom	Local name	Silicon
United Kingdom	WEL TWA (mg/m ³)	10 mg/m ³ inhalable dust 4 mg/m ³ respirable dust
United Kingdom	Regulatory reference	EH40/2005 (Third edition, 2018). HSE

Exposure limit values for the other components

ironoxide (1309-37-1)			
United Kingdom	Local name	Iron oxide	
United Kingdom	WEL TWA (mg/m ³)	5 mg/m ³ fume (as Fe)	
United Kingdom	WEL STEL (mg/m ³)	10 mg/m ³ fume (as Fe)	
United Kingdom	Regulatory reference	EH40/2005 (Third edition, 2018). HSE	

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8.2. Exposure controls

Appropriate engineering controls:

Ensure good ventilation of the work station. Provide eyewash station. Working operations which cause formation of high volumes of vapour should take place in ventilation hood or with local exhaust ventilation. It is forbidden to weld in rooms where there are halogenated solvents in the working atmosphere.

Materials for protective clothing:

Heatproof clothing

Hand protection:

Gloves made of insulating material. Heat-resistant gloves. EN 388. Chemical resistant gloves required for prolonged or repeated contact. STANDARD EN 374.

Eye protection:

Use approved safety goggles or face shield. Wear safety glasses with high protection against UV radiation. STANDARD EN 166.

Skin and body protection:

Wear thermal insulated gloves, shoes and other safety equipment designed for welding

Respiratory protection:

During welding supplied-air respirator or motor assisted respirators with P2 or P3-filter should be used in combination with brown, yellow and gray gas filter. Respiratory protection should be used in conjunction with welding hood. Standard EN 143. STANDARD EN 149. EN 405. EN 139

Other information:

Personal protective equipment should be chosen according to the CEN standards and in discussion with the supplier of the protective equipment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Solid
Appearance	: Wire.
Colour	: According to product specification.
Odour	: Odourless or no characteristic odour.
Odour threshold	: Not relevant.
pH	: Not relevant.
Relative evaporation rate (butylacetate=1)	: Not relevant.
Melting point	: Not determined.
Freezing point	: Not relevant.
Boiling point	: Not relevant.
Flash point	: Not relevant.
Auto-ignition temperature	: Not relevant.
Decomposition temperature	: Not relevant.
Flammability (solid, gas)	: Not applicable
Vapour pressure	: Not relevant.
Relative vapour density at 20 °C	: Not relevant.
Relative density	: Not determined.
Solubility	: Not soluble in water.
Log Pow	: Not determined.
Viscosity, kinematic	: Not relevant.
Viscosity, dynamic	: Not relevant.
Explosive properties	: Not explosive.
Oxidising properties	: Non flammable.
Explosive limits	: Not relevant.

9.2. Other information

Additional information : None to our knowledge.

SECTION 10: Stability and reactivity

10.1. Reactivity

No incompatible groups noted.

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10.2. Chemical stability

Stable under normal temperature conditions and recommended use.

10.3. Possibility of hazardous reactions

Will not polymerise.

10.4. Conditions to avoid

Water, humidity.

10.5. Incompatible materials

Acids.

10.6. Hazardous decomposition products

The most ordinary chimney gases include: Ozone. Carbon dioxide. Carbon monoxide. Oxides of: boron. Chromium. Iron. Fluorides. Manganese. Molybdenum (Mo). Nickel (Ni). Silicon (Si). Titanium.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral) : Not classified
Acute toxicity (dermal) : Not classified
Acute toxicity (inhalation) : Not classified
Additional information : Based on available data, the classification criteria are not met

Manganese (7439-96-5)	
LD50 oral rat	9000 mg/kg

Iron (7439-89-6)	
LD50 oral rat	30000 mg/kg

titanium dioxide (13463-67-7)	
LD50 oral rat	> 100000 mg/kg

Nickel (7440-02-0)	
LD50 oral rat	> 5000 mg/kg

Zirconium compounds (as Zr) (1314-23-4)	
LD50 oral rat	> 8800 mg/kg

aluminium(III)oxide (1344-28-1)	
LD50 oral rat	> 5000 mg/kg

silicon (7440-21-3)	
LD50 oral rat	3160 mg/kg

Skin corrosion/irritation : Not classified
pH: Not relevant.
Additional information : Based on available data, the classification criteria are not met
Serious eye damage/irritation : Not classified
pH: Not relevant.
Additional information : Dust from this product may cause eye irritation
Vapor may irritate eyes
Respiratory or skin sensitisation : May cause an allergic skin reaction.
Germ cell mutagenicity : Not classified
Additional information : Based on available data, the classification criteria are not met
Carcinogenicity : Suspected of causing cancer.
Additional information : Prolonged and repeated inhalation of welding fumes may cause an increased risk of developing lungrelated cancers.
Reproductive toxicity : Not classified

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Additional information	: Based on available data, the classification criteria are not met
STOT-single exposure	: Not classified (Based on available data, the classification criteria are not met)
Additional information	: In the smoke emitted by use, there will be an additional risk if inhaled. Intensive exposure to welding fumes may cause lung disease, bronchitis, or worsen already existing inhalation problems. Intensified exposure to manganese (Mn) can damage the central nervous system or worsen existing health problems. Inhalation of fumes or vapours may cause respiratory irritation
STOT-repeated exposure	: Causes damage to organs through prolonged or repeated exposure.
Aspiration hazard	: Not classified
Additional information	: Based on available data, the classification criteria are not met
Potential adverse human health effects and symptoms	: Based on available data, the classification criteria are not met.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general	: The product is not considered harmful to aquatic organisms nor to cause long-term adverse effects in the environment.
Acute aquatic toxicity	: Not classified
Chronic aquatic toxicity	: Not classified

Manganese (7439-96-5)	
LC50 fish 1	2.91 mg/l (96 hours)
EC50 Daphnia 1	5.2 mg/l 48 hours

Iron (7439-89-6)	
LC50 fish 1	13.6 mg/l 96h (FeCl ₂) Morone saxatilis
EC50 Daphnia 1	5.2 mg/l 48h

titanium dioxide (13463-67-7)	
LC50 fish 1	> 1000 mg/l Fundulus heteroclitus
EC50 Daphnia 1	> 1000 mg/l (48 hours - Daphnia magna)

Molybdenum (7439-98-7)	
LC50 fish 1	2600 mg/l LC50 96 h - fish [mg/l]

Nickel (7440-02-0)	
LC50 fish 1	> 100 mg/l (96 hours - Brachydanio rerio, zebra-fish)
EC50 Daphnia 1	> 100 mg/l Daphnia magna, 48 hours

aluminium(III)oxide (1344-28-1)	
LC50 fish 1	> 100 mg/l LC50 96h fish Salmo trutta
EC50 Daphnia 1	> 100 mg/l Daphnia magna, 48 hours

12.2. Persistence and degradability

NST INOX flux cored wires	
Persistence and degradability	The product is not biodegradable.

Iron (7439-89-6)	
Persistence and degradability	There are no data on the degradability of this product.

12.3. Bioaccumulative potential

NST INOX flux cored wires	
Log Pow	Not determined.
Bioaccumulative potential	No data available on bioaccumulation.

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Manganese (7439-96-5)	
Bioconcentration factor (BCF REACH)	59052

Iron (7439-89-6)	
Bioconcentration factor (BCF REACH)	140000

Nickel (7440-02-0)	
Bioconcentration factor (BCF REACH)	16
Log Pow	< 0

12.4. Mobility in soil

NST INOX flux cored wires	
Ecology - soil	The product is insoluble in water.

Iron (7439-89-6)	
Ecology - soil	The product is water soluble and may spread in water systems.

12.5. Results of PBT and vPvB assessment

NST INOX flux cored wires	
This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII	
This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII	

Component	
Iron (7439-89-6)	This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII

12.6. Other adverse effects

Other adverse effects : None to our knowledge.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Regional legislation (waste) : Dispose as hazardous waste.
Product/Packaging disposal recommendations : Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to a hazardous or special waste collection point.
European List of Waste (LoW) code : 12 01 13 - welding wastes

SECTION 14: Transport information

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

ADR	IMDG	IATA	ADN	RID
14.1. UN number				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
14.2. UN proper shipping name				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
14.3. Transport hazard class(es)				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
14.4. Packing group				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
14.5. Environmental hazards				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
No supplementary information available				

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14.6. Special precautions for user

Overland transport

Not regulated

Transport by sea

Not regulated

Air transport

Not regulated

Inland waterway transport

Not regulated

Rail transport

Not regulated

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

EU-Regulations

Contains no REACH substances with Annex XVII restrictions

Contains no substance on the REACH candidate list

Contains no REACH Annex XIV substances

Contains no substance 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.

Substance(s) are 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.

National regulations

EC-regulation 2015/830 /EC, 1907/2006/EC (REACH), 1272/2008/EC (CLP), 790/2009/EC. Transport of dangerous goods (ADR/RID, IMDG, IATA/ICAO). Workplace exposure limits.

15.2. Chemical safety assessment

No chemical safety assessment has been carried out

SECTION 16: Other information

SDS ID : 302163

Data sources : EC-regulation 2015/830 /EC, 1907/2006/EC (REACH), 1272/2008/EC (CLP), 790/2009/EC. Transport of dangerous goods (ADR/RID, IMDG, IATA/ICAO). Workplace exposure limits.

Full text of H- and EUH-statements:	
Carc. 2	Carcinogenicity, Category 2
Skin Sens. 1	Skin sensitisation, Category 1
STOT RE 1	Specific target organ toxicity — Repeated exposure, Category 1
H317	May cause an allergic skin reaction.
H351	Suspected of causing cancer.
H372	Causes damage to organs through prolonged or repeated exposure.