

SAFETY DATA SHEET

According to Regulation (EC) No. 1907/2006 (REACH) Article 31, Annex II as amended.

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

1.1 Product identifier Product name: ANTICORIT DFO 8301

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

Identified uses: Anticorrosion product Uses advised against: No uses advised against identified.

1.3 Details of the supplier of the safety data sheet

Manufacturer / Supplier	FUCHS LUBRICANTS (UK) PLC. New Century Street Hanley Stoke-on-Trent, Staffordshire, ST1 5HU UK
Telephone:	+44 (0) 1782 203700
Contact Person: Telephone: E-mail:	Product Safety department +44 (0) 1782 203700 product.safety@fuchs-oil.com
1.4 Emergency telephone number:	UK NHS: Dial 111. Ireland NPIS: Dial +353 1 8092566.

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

The product has been classified and labelled as hazardous according to regulation (EU) 1272/2008 (CLP).

Classification according to Regulation (EC) No 1272/2008 as amended.

Health Hazards

Aspiration Hazard	Category 1	H304: May be fatal if swallowed and enters airways.
Hazard summary Physical Hazards:	of mineral oil products a	pour-air mixtures during the application. By handling and chemical products no particular hazard is known ns (item 7) and personal protective equipment (item
2.2 Label Elements Contains:	Isoparaffines, low viscou	JS



Signal Words:	Danger	
Hazard Statement(s):	H304: May be fatal if swallowed and enters airways.	
Precautionary Statemer	ıt	
Response:	P301+P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor. P331: Do NOT induce vomiting.	
Disposal:	P501: Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.	
Supplemental label information		
	EUH208: Contains Calcium Sulfonate, Ca sulfonate. May produce an allergic reaction.	
2.3 Other hazards:	By handling of mineral oil products and chemical products no particular hazard is known when normal precautions (item 7) and personal protective equipment (item 8) are kept. The product may not be released into the environment without control.	
SECTION 3: Composition/information	ation on ingredients	

3.2 Mixtures

General information:

Mixture based on severely refined mineral base oils with corrosion preventive agents and volatile hydrocarbons.

Chemical name	Identifier	Concentration *	REACH Registration No.	Notes
Isoparaffines, low viscous	EINECS: 920-901-0	50,00 - <100,00%	01-2119456810-40	
Calcium Sulfonate	EINECS: 263-093-9	1,00 - <5,00%	01-2119488992-18	
Glycol derivative	EINECS: 203-961-6	1,00 - <5,00%	01-2119475104-44	
Ca sulfonate	EINECS: 939-603-7	1,00 - <5,00%	01-2119978241-36	
phenolic antioxidant	EINECS: 204-881-4	0,10 - <0,25%	01-2119565113-46	

* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

PBT: persistent, bioaccumulative and toxic substance. vPvB: very persistent and very bioaccumulative substance.



Classification

Chemical name	Identifier	Classification	
Isoparaffines, low viscous	EINECS: 920-901-0	CLP: Asp. Tox. 1;H304	
Calcium Sulfonate	EINECS: 263-093-9	CLP: Skin Sens. 1B;H317	
Glycol derivative	EINECS: 203-961-6	CLP: Eye Irrit. 2;H319	
Ca sulfonate	EINECS: 939-603-7	CLP: Skin Sens. 1B;H317	
phenolic antioxidant	EINECS: 204-881-4	CLP: Aquatic Acute 1;H400, Aquatic Chronic 1;H410	

CLP: Regulation No. 1272/2008.

For the wording of the listed risk phrases refer to section 16.

SECTION 4: First aid measures

General:	Change clothes and shoes contaminated or soaked by the product. Never put rags contaminated by the product into clothing pockets.		
4.1 Description of first aid measu	Ires		
Inhalation:	Supply fresh air; consult doctor in case of symptoms.		
Eye contact:	Promptly wash eyes with plenty of water while lifting the eye lids.		
Skin Contact:	Wash with water and soap; pay attention: skin degreasing product.		
Ingestion:	Call a physician or poison control center immediately. Rinse mouth. Never give liquid to an unconscious person. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.		
4.2 Most important symptoms and effects, both acute and delayed:	Headache.		
4.3 Indication of any immediate medical attention and special treatment needed	Get medical attention if symptoms occur.		
SECTION 5: Firefighting measures			
General Fire Hazards:	Use water spray to keep fire-exposed containers cool.		
5.1 Extinguishing media			
Suitable extinguishing media:	CO2, fire extinguishing powder or fog like water spraying. Extinguish larger fires with alcohol resistant foam or spray water with suitable surfactant added		
Unsuitable extinguishing media:	Water with a full water jet.		
5.2 Special hazards arising from the substance or mixture:	Can form explosive vapor-air mixtures at higher temperatures.		



5.3 Advice for firefighters Special fire fighting procedures:	No data available.		
Special protective equipment for fire-fighters:	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.		
SECTION 6: Accidental release n	neasures		
6.1 Personal precautions, protective equipment and emergency procedures:	In case of spills, beware of slippery floors and surfaces. Keep away from sources of ignition - No smoking.		
6.2 Environmental Precautions:	Prevent from spreading (e.g. by binding or oil barriers).		
6.3 Methods and material for containment and cleaning up:	Absorb with liquid-binding material (sand, diatomite, acidbinders, universal binders, sawdust).		
6.4 Reference to other sections:	See Section 8 of the SDS for Personal Protective Equipment. See Section 7 for information on safe handling See Section 13 for information on disposal.		
SECTION 7: Handling and storag	e:		
7.1 Precautions for safe handling:	Use only in well-ventilated areas. Risk of vapor concentration on the floor and in low-lying areas.		
7.2 Conditions for safe storage, including any incompatibilities:	Store locked up. Local regulations concerning handling and storage of waterpolluting products have to be followed. The precautions for storing and handling of flammable liquids have to be kept. Local regulations for common storage of flammable liquids have to be followed. Prevent formation of aerosols. Do not heat up to temperatures close to the flash point.		
7.3 Specific end use(s):	not applicable		
Storage Class:	10, Combustible liquids		

SECTION 8: Exposure controls/personal protection

8.1 Control Parameters

Occupational Exposure Limits

Chemical name	type	Exposure Limit Values	Source
Glycol derivative	TWA	10 ppm 67,5 mg/m3	UK. EH40 Workplace Exposure Limits (WELs) (12 2011)
Glycol derivative	STEL	15 ppm 101,2 mg/m3	UK. EH40 Workplace Exposure Limits (WELs) (12 2011)



8.2 Exposure controls			
Appropriate engineering controls:	No data available.		
Individual protection measure	es, such as personal protective equipment		
General information:	Wash hands before breaks and after work. Use personal protective equipment as required. Personal protection equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment. The usual precautionary measures should be adhered to inhandling the chemicals or the mineral oil products.		
Eye/face protection:	Safety glasses (EN 166) recommended during refilling.		
Skin protection Hand Protection:	Material: Nitrile butyl rubber (NBR). Avoid long-term and repeated skin contact. Suitable gloves can be recommended by the glove supplier. Use skin protection cream for preventive skin protection. Protective gloves, where permitted in acc. to safety directions. The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.		
Other:	Do not carry cleaning cloths impregnated with the product in trouser pockets. Wear suitable protective clothing.		
Respiratory Protection:	In case of insufficient ventilation, wear suitable respiratory equipment. Seek advice from local supervisor.		
Thermal hazards:	Not known.		
Hygiene measures:	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing to remove contaminants. Discard contaminated footwear that cannot be cleaned.		
Environmental Controls:	No data available.		

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state:	liquid
Form:	liquid
Color:	Pale yellow
Odor:	Characteristic
Odor Threshold:	Not applicable for mixtures
pH:	not applicable
Freezing point:	Not applicable for mixtures
Boiling Point:	not applicable
Flash Point:	74 °C



Evaporation Rate:	Not applicable for mixtures
Flammability (solid, gas):	Value not relevant for classification
Flammability Limit - Upper (%)–:	Not applicable for mixtures
Flammability Limit - Lower (%)–:	Not applicable for mixtures
Vapor pressure:	Not applicable for mixtures
Vapor density (air=1):	Not applicable for mixtures
Density:	0,80 g/ml (15,00 °C)
Solubility(ies)	
Solubility in Water:	Insoluble in water
Solubility (other):	No data available.
Partition coefficient (n-octanol/water):	Not applicable for mixtures
Autoignition Temperature:	Value not relevant for classification
Decomposition Temperature:	Value not relevant for classification
Kinematic viscosity:	2,3 mm2/s (40,00 °C)
Explosive properties:	Value not relevant for classification
Oxidizing properties:	Value not relevant for classification
9.2 Other information	No data available.

SECTION 10: Stability and reactivity

10.1 Reactivity:	Stable under normal temperature conditions and recommended use.
10.2 Chemical Stability:	No data available.
10.3 Possibility of hazardous reactions:	None under normal conditions.
10.4 Conditions to avoid:	Avoid heat or contamination.
10.5 Incompatible Materials:	Strong oxidizing substances. Strong acids. Strong bases.
10.6 Hazardous Decomposition Products:	Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapors.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Oral Product:

Not classified for acute toxicity based on available data.



Specified substance(s) Isoparaffines, low viscous Calcium Sulfonate Glycol derivative Ca sulfonate phenolic antioxidant	LD 50 (Rat): > 10.000 mg/kg LD 50 (Rat): > 16.000 mg/kg LD 50 (Rat): 3.384 mg/kg No data available. LD 50 (Rat): 2.930 mg/kg (OECD 401)
Dermal Product:	Not classified for acute toxicity based on available data
	Not classified for acute toxicity based on available data.
Specified substance(s) Isoparaffines, low viscous Calcium Sulfonate Glycol derivative Ca sulfonate phenolic antioxidant	LD 50 (Rabbit): > 3.160 mg/kg LD 50 (Rat): > 4.000 mg/kg LD 50 (Rabbit): 2.700 mg/kg No data available. LD 50 (Rat): > 5.000 mg/kg (OECD 402)
Inhalation Product:	Not classified for acute toxicity based on available data.
Specified substance(s) Isoparaffines, low viscous Calcium Sulfonate Glycol derivative Ca sulfonate phenolic antioxidant	No data available. No data available. No data available. No data available. No data available.
Repeated dose toxicity Product:	No data available.
Specified substance(s) Isoparaffines, low viscous Calcium Sulfonate Glycol derivative Ca sulfonate phenolic antioxidant	No data available. No data available. No data available. No data available. (Rat, Oral, 28 d): 25 mg/kg
Skin Corrosion/Irritation: Product:	No data available.
Specified substance(s) Isoparaffines, low viscous Calcium Sulfonate Glycol derivative Ca sulfonate phenolic antioxidant	No data available. No data available. No data available. No data available. No data available.



Serious Eye Damage/Eye Irri Product:	tation: No data available.
Specified substance(s) Isoparaffines, low viscous Calcium Sulfonate Glycol derivative Ca sulfonate phenolic antioxidant	No data available. No data available. No data available. No data available. No data available.
Respiratory or Skin Sensitiza Product:	ation:
	Experimental data has shown that the concentration of potentially sensitizing components present in this product does not induce skin sensitization.
Specified substance(s) Isoparaffines, low viscous Calcium Sulfonate Glycol derivative Ca sulfonate phenolic antioxidant	No data available. No data available. No data available. No data available. No sensitizing effect (guinea pig); OECD 406
Germ Cell Mutagenicity	
In vitro	
Product:	No data available.
Specified substance(s) Isoparaffines, low viscous Calcium Sulfonate Glycol derivative Ca sulfonate phenolic antioxidant	No data available. No data available. No data available. No data available. No data available.
In vivo Product:	No data available.
Specified substance(s) Isoparaffines, low viscous Calcium Sulfonate Glycol derivative Ca sulfonate phenolic antioxidant	No data available. No data available. No data available. No data available. No data available.
Carcinogenicity Product:	No data available.
Specified substance(s)	



Isoparaffines, low viscous	No data available.
Calcium Sulfonate	No data available.
Glycol derivative	No data available.
Ca sulfonate	No data available.
phenolic antioxidant	No data available.
Reproductive toxicity	
Product:	No data available.
Froduct.	NO data available.
Specified substance(s)	
Isoparaffines, low viscous	No data available.
Calcium Sulfonate	No data available.
Glycol derivative	No data available.
Ca sulfonate	No data available.
phenolic antioxidant	No data available.
-	
Specific Target Organ Toxici	
Product:	No data available.
Specified substance(s)	
Specified substance(s) Isoparaffines, low viscous	No data available.
Calcium Sulfonate	No data available.
	No data available.
Glycol derivative Ca sulfonate	No data available.
	No data available.
phenolic antioxidant	NO Uata avallable.
Specific Target Organ Toxici	ity - Repeated Exposure
Product:	No data available.
Specified substance(s)	
Isoparaffines, low viscous	No data available.
Calcium Sulfonate	No data available.
Glycol derivative	No data available.
Ca sulfonate	No data available.
phenolic antioxidant	No data available.
Aspiration Hazard	
Product:	May be fatal if swallowed and enters airways.
Specified substance(s)	
Isoparaffines, low viscous	No data available.
Calcium Sulfonate	No data available.
Glycol derivative	No data available.
Ca sulfonate	No data available.
phenolic antioxidant	No data available.
prienolic antioxidant	NO data avallable.
Other Adverse Effects:	No data available.



SECTION 12: Ecological information

12.1 Toxicity

Acute toxicity

Fish Product:	No data available.
Specified substance(s) Isoparaffines, low viscous Calcium Sulfonate Glycol derivative Ca sulfonate phenolic antioxidant	LC 50 (Fish, 96 h): > 101 mg/l No data available. LC 50 (Fish, 96 h): 1.300 mg/l LC 50 (Fish, 96 h): > 101 mg/l LC 50 (Fish, 96 h): > 0,57 mg/l (OECD 203)
Aquatic Invertebrates Product:	No data available.
Specified substance(s) Isoparaffines, low viscous Calcium Sulfonate Glycol derivative Ca sulfonate phenolic antioxidant	No data available. No data available. EC 50 (Water Flea, 48 h): > 101 mg/l EC 50 (Water Flea, 48 h): > 1.001 mg/l EC 50 (Water Flea, 48 h): > 0,17 mg/l
Chronic Toxicity	
Fish Product:	No data available.
Specified substance(s) Isoparaffines, low viscous Calcium Sulfonate Glycol derivative Ca sulfonate phenolic antioxidant	No data available. No data available. No data available. No data available. No data available.
Aquatic Invertebrates Product:	No data available.
Specified substance(s) Isoparaffines, low viscous Calcium Sulfonate Glycol derivative Ca sulfonate phenolic antioxidant Toxicity to Aquatic Plants	No data available. No data available. No data available. No data available. NOEC (Water Flea, 21 d): > 0,39 mg/l
Product:	No data available.

Specified substance(s)



Isoparaffines, low viscous No data available.

SECTION 13: Disposal considerations	
Water Hazard Class (WGK):	WGK 1: slightly water-endangering.
12.6 Other Adverse Effects:	No data available.
12.5 Results of PBT and vPvB assessment:	The product does not contain any substances fulfilling the PBT/vPvB criteria.
Ca sulfonate phenolic antioxidant	No data available. No data available.
Isoparaffines, low viscous Calcium Sulfonate Glycol derivative	No data available. No data available. No data available.
12.4 Mobility in Soil:	No data available. tion to environmental compartments
phenolic antioxidant	May be accumulated in organism
Ca sulfonate	No data available.
Calcium Sulfonate Glycol derivative	No data available. No data available.
Specified substance(s) Isoparaffines, low viscous	No data available.
12.3 Bioaccumulative Potential Product:	No data available.
phenolic antioxidant	30 % (OECD 302C)
Glycol derivative Ca sulfonate	No data available. No data available.
Calcium Sulfonate	No data available.
Specified substance(s) Isoparaffines, low viscous	31 % (28 d, OECD 301F) Not readily degradable.
Biodegradation Product:	No data available.
12.2 Persistence and Degradability	
Ca sulfonate phenolic antioxidant	EC 50 (Alga, 72 h): > 101 mg/l EC 50 (Alga, 72 h): > 0,42 mg/l
Calcium Sulfonate Glycol derivative	No data available. EC 50 (Alga, 96 h): > 101 mg/l
Coloium Sulfonato	No data available.

13.1 Waste treatment methods

General information:

Dispose in accordance with all applicable regulations.



Disposal methods:

Discharge, treatment, or disposal may be subject to national, state, or local laws.

European Waste Codes

07 04 04*: other organic solvents, washing liquids and mother liquors

SECTION 14: Transport information

ADR/RID

ADR/RID	
14.1 UN Number:	-
14.2 UN Proper Shipping Name:	-
14.3 Transport Hazard Class(es)	
Class:	Non-dangerous goods
Label(s):	_
Hazard No. (ADR):	_
Tunnel restriction code:	_
14.4 Packing Group:	-
14.5 Environmental hazards:	-
14.6 Special precautions for user:	-
451	
ADN	
14.1 UN Number:	-
14.2 UN Proper Shipping Name:	-
14.3 Transport Hazard Class(es)	
Class:	Non-dangerous goods
Label(s):	-
14.3 Packing Group:	-
14.5 Environmental hazards:	-
14.6 Special precautions for user:	-
IMDG	
14.1 UN Number:	_
14.1 UN Number: 14.2 UN Proper Shipping Name:	_ _
14.1 UN Number: 14.2 UN Proper Shipping Name: 14.3 Transport Hazard Class(es)	_ _
14.1 UN Number: 14.2 UN Proper Shipping Name: 14.3 Transport Hazard Class(es) Class:	– – Non-dangerous goods
14.1 UN Number: 14.2 UN Proper Shipping Name: 14.3 Transport Hazard Class(es) Class: Label(s):	– – Non-dangerous goods –
14.1 UN Number: 14.2 UN Proper Shipping Name: 14.3 Transport Hazard Class(es) Class:	– – Non-dangerous goods – –
14.1 UN Number: 14.2 UN Proper Shipping Name: 14.3 Transport Hazard Class(es) Class: Label(s): EmS No.:	– – Non-dangerous goods – –
14.1 UN Number: 14.2 UN Proper Shipping Name: 14.3 Transport Hazard Class(es) Class: Label(s): EmS No.: 14.3 Packing Group:	– – Non-dangerous goods – – –
14.1 UN Number: 14.2 UN Proper Shipping Name: 14.3 Transport Hazard Class(es) Class: Label(s): EmS No.: 14.3 Packing Group: 14.5 Environmental hazards:	– – Non-dangerous goods – – –
14.1 UN Number: 14.2 UN Proper Shipping Name: 14.3 Transport Hazard Class(es) Class: Label(s): EmS No.: 14.3 Packing Group:	– – Non-dangerous goods – – –
14.1 UN Number: 14.2 UN Proper Shipping Name: 14.3 Transport Hazard Class(es) Class: Label(s): EmS No.: 14.3 Packing Group: 14.5 Environmental hazards:	– – Non-dangerous goods – – –
14.1 UN Number: 14.2 UN Proper Shipping Name: 14.3 Transport Hazard Class(es) Class: Label(s): EmS No.: 14.3 Packing Group: 14.5 Environmental hazards: 14.6 Special precautions for user:	– Non-dangerous goods – – – –
14.1 UN Number: 14.2 UN Proper Shipping Name: 14.3 Transport Hazard Class(es) Class: Label(s): EmS No.: 14.3 Packing Group: 14.5 Environmental hazards: 14.6 Special precautions for user: IATA 14.1 UN Number:	– Non-dangerous goods – – – –
14.1 UN Number: 14.2 UN Proper Shipping Name: 14.3 Transport Hazard Class(es) Class: Label(s): EmS No.: 14.3 Packing Group: 14.5 Environmental hazards: 14.6 Special precautions for user: IATA 14.1 UN Number: 14.2 Proper Shipping Name:	 Non-dangerous goods
14.1 UN Number: 14.2 UN Proper Shipping Name: 14.3 Transport Hazard Class(es) Class: Label(s): EmS No.: 14.3 Packing Group: 14.5 Environmental hazards: 14.6 Special precautions for user: IATA 14.1 UN Number: 14.2 Proper Shipping Name: 14.3 Transport Hazard Class(es):	
14.1 UN Number: 14.2 UN Proper Shipping Name: 14.3 Transport Hazard Class(es) Class: Label(s): EmS No.: 14.3 Packing Group: 14.5 Environmental hazards: 14.6 Special precautions for user: IATA 14.1 UN Number: 14.2 Proper Shipping Name: 14.3 Transport Hazard Class(es): Class:	- Non-dangerous goods - - - - - Non-dangerous goods
14.1 UN Number: 14.2 UN Proper Shipping Name: 14.3 Transport Hazard Class(es) Class: Label(s): EmS No.: 14.3 Packing Group: 14.5 Environmental hazards: 14.6 Special precautions for user: IATA 14.1 UN Number: 14.2 Proper Shipping Name: 14.3 Transport Hazard Class(es): Class: Label(s):	
14.1 UN Number: 14.2 UN Proper Shipping Name: 14.3 Transport Hazard Class(es) Class: Label(s): EmS No.: 14.3 Packing Group: 14.5 Environmental hazards: 14.6 Special precautions for user: IATA 14.1 UN Number: 14.2 Proper Shipping Name: 14.3 Transport Hazard Class(es): Class: Label(s): 14.4 Packing Group:	
14.1 UN Number: 14.2 UN Proper Shipping Name: 14.3 Transport Hazard Class(es) Class: Label(s): EmS No.: 14.3 Packing Group: 14.5 Environmental hazards: 14.6 Special precautions for user: IATA 14.1 UN Number: 14.2 Proper Shipping Name: 14.3 Transport Hazard Class(es): Class: Label(s): 14.4 Packing Group: 14.5 Environmental hazards:	
14.1 UN Number: 14.2 UN Proper Shipping Name: 14.3 Transport Hazard Class(es) Class: Label(s): EmS No.: 14.3 Packing Group: 14.5 Environmental hazards: 14.6 Special precautions for user: IATA 14.1 UN Number: 14.2 Proper Shipping Name: 14.3 Transport Hazard Class(es): Class: Label(s): 14.4 Packing Group:	



14.7 Transport in bulk according to Annex II of MARPOL73/78 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

Regulation (EC) No. 2037/2000 Substances that deplete the ozone layer: none

Regulation (EC) No. 850/2004 on persistent organic pollutants: none

15.2 Chemical safety No Chemical Safety Assessment has been carried out. **assessment:**

SECTION 16: Other information

Revision Information:

Vertical lines in the margin indicate an amendment.

Wording of the H-statements in section 2 and 3

nents in section 2 and 5
May be fatal if swallowed and enters airways.
May cause an allergic skin reaction.
Causes serious eye irritation.
Very toxic to aquatic life.
Very toxic to aquatic life with long lasting effects.
Follow training instructions when handling this material.
The classification is in line with current EC lists. It is expanded, however, by information from technical literature and by information furnished by supplier companies. The classification results from the Conventional Method mentioned in regulation EU 1272/2008 (CLP).
08.12.2015 The data contained in this safety data sheet are based on our current knowledge and experience and are given to the best of our knowledge and belief. It characterizes the product only with regard to safety requirements for handling, transport and disposal. The data do not describe the product's properties (tech. product specification). Neither should any agreed property nor the suitability of the product for any specific technical application be deduced from the data contained in this safety data sheet. Modifications on this document are not allowed. The data are not transferable to other products. In the case of mixing the product with other products or in the case of processing, the data in this safety data sheet are not necessarily valid for the new-made material. It is the responsibility of the recipient of the product to observe federal, state and local law. Please contact us to obtain up-to-date safety data sheets. This document was issued electronically and has no signature.