SAFETY DATA SHEET

This safety data sheet was created pursuant to the requirements of:
REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878

Revision date 2-Jan-2023 **Revision Number** 3

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

1.1. Product Identifier

Product name: NORIT® 18X40 AG 1

REACH registration number: 01-2119488894-16

Synonyms: Activated carbon

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

Recommended use: Liquid and vapor applications (purification, decolorization, separation, catalyst and deodorization)

Uses advised against: None known.

1.3. Details of the supplier of the safety data sheet

Norit Nederland B.V.
Astronaut 34
Amersfoort
3824 MJ
The Netherlands
Tel: +31 33 464 8911
Fax: +31 33 461 7429

E-mail address: sdssupport@norit.com

1.4. Emergency telephone number

Emergency Telephone Number: The Netherlands CHEMTREC: +(31)-858880596
International CHEMTREC: +1 703-741-5970 or +1-703-527-3887
US: CHEMTREC 1-800-424-9300 or 1-703-527-3887

2. HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

Regulation (EC) No 1272/2008

Chronic aquatic toxicity	Category 2 - (H411)

2.2. Label elements

Hazard statements
H411 - Toxic to aquatic life with long lasting effects

Precautionary Statements - EU (§28, 1272/2008)
P273 - Avoid release to the environment
P391 - Collect spillage
P501 - Dispose of contents/ container to an approved waste disposal plant

2.3. Other Hazards

This substance does not fulfill the criteria for PBT or vPvB.

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Activated carbon (especially when wet) can deplete oxygen from air in enclosed spaces, and dangerously low levels of oxygen may result. Prior to entering a confined space that contains or previously contained activated carbon, the space should be evaluated for oxygen and carbon monoxide concentrations, and any other hazards, by a qualified person.

Workers should also take appropriate precautions when dealing with spent (used) activated carbons which may exhibit hazardous properties associated with the adsorbed materials.

Avoid generation of dust. Powdered material may form an explosible dust-air mixture. If transferring product under pressure, avoid generation of dust if an ignition source is present.

Activated carbons have high surface area which may cause self-heating during oxidation. See section 5.

Do not generate dust because airborne respirable crystalline silica may be generated.

Dust contact with the eyes can lead to mechanical irritation. Contact with dust can cause mechanical irritation or drying of the skin. Dust may be irritating to respiratory tract.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Chemical name	Weight-%	REACH registration number	EC No	Classification according to Regulation (EC) No. 1272/2008 [CLP]	Specific concentration limit (SCL)	M-Factor	M-Factor (long-term)
Activated Carbon 7440-44-0	99	01-2119488894-16	931-328-0	-	-	-	-
Silver 7440-22-4	0.1	-	231-131-3	-	-	-	-

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation If cough, shortness of breath or other breathing problems occur, move to fresh air. Seek medical attention if symptoms persist. If necessary, restore normal breathing through standard first aid measures.

Eye contact In case of eye contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if symptoms occur.

Skin contact Wash skin with soap and water. Get medical attention if symptoms occur.

Ingestion Do NOT induce vomiting. Rinse mouth thoroughly with water. Never give anything by mouth to an unconscious person.

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

Symptoms See Section 11 for additional Toxicological Information.

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

Note to physicians Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable Extinguishing Media Use foam, carbon dioxide (CO2), dry chemical or water spray. A fog is recommended if water is used.

Unsuitable extinguishing media Do not use a solid water stream as it may scatter and spread fire. DO NOT USE high pressure media which could cause formation of a potentially explosible dust-air mixture. In the event of a fire, spreading large amounts of activated carbon is not recommended due to the risk of creating uncontrolled dust emissions.

5.2. Special hazards arising from the substance or mixture

Specific hazards arising from the chemical Burning produces irritant fumes. If transferring product under pressure, avoid generation of dust if an ignition source is present.

Activated carbons have high surface area which may cause self-heating during oxidation. An adequate air gap between packages of activated carbon is recommended to reduce risk of propagation of the event. Activated carbon is difficult to ignite and tends to burn slowly (smolder) without producing smoke or flame.

Hazardous combustion products Materials allowed to smolder for long periods in enclosed spaces may produce amounts of carbon monoxide which reach the lower explosive limit (carbon monoxide LEL = 12.5% in air). Used activated carbon may produce additional combustion products which are based on the substance(s) adsorbed. Carbon monoxide, Carbon dioxide (CO2), Silver/silver oxides

5.3. Advice for firefighters

Special protective equipment and precautions for fire-fighters	In case of fire: Wear self-contained breathing apparatus. Use personal protection equipment.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions	Avoid generation of dust. Ensure adequate ventilation. Use personal protective equipment as required. See section 8.

6.2. Environmental precautions

Environmental precautions	Should not be released into the environment. Local authorities should be advised if significant spillages cannot be contained. See Section 12 for additional Ecological Information.

6.3. Methods and material for containment and cleaning up

Methods for containment	Prevent further leakage or spillage if safe to do so.
Methods for cleaning up	Avoid dry sweeping and use water spraying or vacuum cleaning systems to prevent airborne dust generation. If the spilled material contains dust or has the potential to create dust, use explosion-proof vacuums and/or cleaning systems suitable for combustible dusts. Use of a vacuum with high efficiency particulate air (HEPA) filtration is recommended. Do not create a dust cloud by using a brush or compressed air. Pick up and transfer to properly labeled containers. Spent granular activated carbon may be recyclable. Dispose of virgin (unused) carbon (surplus or spillage) in a facility permitted for non-hazardous wastes. Spent (used) carbon should be disposed of in accordance with applicable laws. Do not reuse empty bags: dispose of in a facility permitted for non-hazardous wastes. See section 13.

6.4. Reference to other sections

Reference to other sections	See section 8 for more information. See section 13 for more information.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling	Avoid contact with skin and eyes. Avoid generation of dust. Do not breathe dust. Provide appropriate local exhaust ventilation at machinery and at places where dust can be generated. Do not create a dust cloud by using a brush or compressed air. Dust can form an explosive mixture with air. Activated carbons have high surface area which may cause self-heating during oxidation. Take precautionary measures against static discharges. All metal parts of the mixing and processing equipment must be earthed/grounded. Ensure all equipment is electrically earthed/grounded before beginning transfer operations. Fine dust is capable of penetrating electrical equipment and may cause electrical shorts. If hot work (welding, torch cutting, etc.) is required the immediate work area must be cleared of product and dust.
General hygiene considerations	Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Storage Conditions Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat. Eliminate sources of ignition. Do not store together with strong oxidizing agents. Do not store together with volatile chemicals as they may be adsorbed onto product. Keep in properly labeled containers. Activated carbon is difficult to ignite and tends to burn slowly (smolder) without producing smoke or flame. Dust deposits should not be allowed to accumulate on surfaces, as these may form an explosible mixture if they are released in the atmosphere in sufficient concentrations. Prior to entering a confined space that contains or previously contained activated carbon, the space should be evaluated for oxygen and carbon monoxide concentrations, and any other hazards, by a qualified person.

7.3. Specific end use(s)

Risk Management Methods (RMM) Not Determined.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Exposure Limits There are no exposure limits identified for this product. Exposure limits for components or similar components are stated below.

Chemical name	Activated Carbon 7440-44-0
Austria	TWA: 5 mg/m^3 STEL 10 mg/m^3
Poland	TWA: 6 mg/m^3
Chemical name	Dust, or particulates not otherwise specified RR-00072-6
Belgium	TWA: 3 mg/m^3 alveolar fraction; 10 mg/m^3 inhalable fraction
France	TWA: 10 mg/m^3 inhalable; 5 mg/m^3 alveolar fraction
Ireland	TWA: 10 mg/m^3 total inhalable; 4 mg/m^3 respirable STEL: 30 mg/m^3 total inhalable, calculated; 12 mg/m^3 respirable, calculated
Italy REL	TWA: 10 mg/m^3 inhalable particles, calculated; 3 mg/m^3 respirable particles, calculated
Norway	TWA: 10 mg/m^3 total dust; 5 mg/m^3 respirable dust STEL: 20 mg/m^3 total dust, calculated; 10 mg/m^3 respirable dust, calculated
Portugal	TWA: 10 mg/m^3 inhalable fraction; 3 mg/m^3 respirable fraction
Slovakia	TWA: 10 mg/m^3
Spain	TWA: 10 mg/m^3 inhalable fraction; 3 mg/m^3 respirable fraction
ACGIH TLV	TWA: 10 mg/m^3 inhalable particles, recommended TWA: 3 mg/m^3 respirable particles, recommended
Chemical name	Silver 7440-22-4
European Union	TWA: 0.1 mg/m^3
Austria	TWA: 0.1 mg/m^3 STEL 0.1 mg/m^3 Ceiling: 0.1 mg/m^3
Belgium	TWA: 0.1 mg/m^3
Bulgaria	TWA: 0.1 mg/m^3

Czech Republic	TWA: 0.1 mg/m^3 Ceiling: 0.3 mg/m^3
Denmark	TWA: 0.01 mg/m^3
Finland	TWA: 0.1 mg/m^3
France	TWA: 0.1 mg/m^3
Germany	TWA: 0.1 mg/m^3
Germany MAK	TWA: 0.1 mg/m^3 Peak: 0.8 mg/m^3
Greece	TWA: 0.1 mg/m^3
Hungary	TWA: 0.1 mg/m^3
Ireland	TWA: 0.1 mg/m^3 STEL: 0.3 mg/m^3
Italy	TWA: 0.1 mg/m^3
Italy REL	TWA: 0.1 mg/m^3
Netherlands	TWA: 0.1 mg/m^3
Norway	TWA: 0.1 mg/m^3 STEL: 0.3 mg/m^3
Poland	TWA: 0.05 mg/m^3
Portugal	TWA: 0.01 mg/m^3
Romania	TWA: 0.1 mg/m^3
Slovakia	TWA: 0.1 mg/m^3
Slovenia	TWA: 0.01 mg/m^3 STEL: 0.02 mg/m^3
Spain	TWA: 0.1 mg/m^3
Sweden	NGV: 0.1 mg/m^3
Switzerland	TWA: 0.1 mg/m^3 STEL: 0.8 mg/m^3
United Kingdom	TWA: 0.1 mg/m^3 STEL: 0.3 mg/m^3
ACGIH TLV	TWA: 0.1 mg/m^3 dust and fume

Derived No Effect Level (DNEL)

As required under the EU Registration, Evaluation and Authorization of Chemicals (REACH) regulation, the Activated Carbon REACH Consortium (of which Norit is a member) developed the following Derived No Effect Levels (DNELs) for Activated Carbon based on a 90-day repeated dose inhalation toxicity study in rats: DNELworker of 1.8 mg/m^3 (respirable) and DNELconsumer of 0.9 mg/m^3 (respirable).

Predicted No Effect Concentration (PNEC)

According to the guidelines of the EU Registration, Evaluation and Authorization of Chemicals (REACH), a Predicted No Effect Concentration (PNEC)soil of 10 mg/kg soil was derived based on an earthworm reproduction study. No other PNECs are derived.

8.2. Exposure controls

Engineering controls

Ensure adequate ventilation to maintain exposures below occupational limits. Provide appropriate local exhaust ventilation at machinery and at places where dust can be generated. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal protective equipment

Eye/face protection

Wear safety glasses with side shields (or goggles).

Hand protection	Wear suitable gloves.
Skin and body protection	Wear suitable protective clothing. Wash contaminated clothing before reuse. Contaminated work clothing should not be allowed out of the workplace.
Respiratory protection	Approved respirator may be necessary if local exhaust ventilation is not adequate.
General hygiene considerations	Handle in accordance with good industrial hygiene and safety practice.
Environmental exposure controls	Do not allow into any sewer, on the ground or into any body of water. Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained.

SECTION 9: Physical and chemical properties

Information given is based on data on activated carbon unless otherwise specified.

9.1. Information on basic physical and chemical properties

Physical state	Solid
Appearance	Granular
Color	Black
Odor	Generally odorless
Odor threshold	Not applicable

Property	**Values**	**Remarks • Method**
Melting point / freezing point		Not applicable
Boiling point / boiling range		Not applicable
Flammability (solid, gas)	Not flammable	
Flammability Limit in Air		Not applicable
Flash point		Not applicable
Autoignition temperature		No data available
Decomposition temperature		Not applicable
pH		Not applicable
Kinematic viscosity		Not applicable
Dynamic viscosity		Not applicable
Water solubility	insoluble	@ 20 °C, OECD 105
Solubility(ies)		Not applicable
Partition coefficient		Not applicable
Vapor pressure		Not applicable
Relative density		No data available
Bulk density	500-600 kg/m³	
Relative vapor density		Not applicable

9.2. Other information

9.2.1. Information with regard to physical hazard classes

Not applicable

9.2.2. Other safety characteristics

Explosive properties	Not applicable
Oxidizing properties	Not applicable

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity May react exothermically upon contact with strong oxidizers.

10.2. Chemical stability

Stability Stable under normal conditions. Stable under recommended storage conditions.

Explosion data

Sensitivity to mechanical impact None.

Sensitivity to static discharge Dust can form an explosive mixture with air. Avoid generation of dust. Do not create a dust cloud by using a brush or compressed air. Take precautionary measures against static discharges. All metal parts of the mixing and processing equipment must be earthed/grounded. Ensure all equipment is electrically earthed/grounded before beginning transfer operations.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions None under normal processing.

Hazardous polymerization Hazardous polymerization does not occur.

10.4. Conditions to avoid

Conditions to avoid Avoid generation of dust. Keep away from heat. Eliminate sources of ignition. Activated carbon (especially when wet) can deplete oxygen from air in enclosed spaces, and dangerously low levels of oxygen may result.

Activated carbons have high surface area which may cause self-heating during oxidation.

10.5. Incompatible materials

Incompatible materials Strong oxidizing agents. Strong acids.

10.6. Hazardous decomposition products

Hazardous decomposition products Materials allowed to smolder for long periods in enclosed spaces may produce amounts of carbon monoxide which reach the lower explosive limit (carbon monoxide LEL = 12.5% in air). Used activated carbon may produce additional combustion products which are based on the substance(s) adsorbed. Carbon oxides, Silver/silver oxides

SECTION 11: Toxicological information

Information given is based on data on activated carbon unless otherwise specified.

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity

Oral LD50 > 2000 mg/kg (rat); OECD 423.

Dermal LD50 Absorption highly unlikely, no health effects known.

Inhalation LC50	> 8.5 mg/l (rat, 1 hr); OECD 403.
Skin corrosion/irritation	Not classified. Skin irritation test, rabbit (OECD 404): Not irritating.
Serious eye damage/eye irritation	Not classified. Eye irritation test, rabbit (OECD 405): Not irritating.
Respiratory or skin sensitization	Not classified. Not sensitizing based on Local Lymph Node Assay (OECD 429).
Germ cell mutagenicity	Not classified. - Gene mutation in bacteria (Bacterial Reverse Mutation Assay/Ames) (OECD 471): not mutagenic. - In vitro Mammalian Chromosome Aberration Test (OECD 473): not clastogenic. - In vitro Mammalian Cell Gene Mutation Test (OECD 476): non-mutagenic.
Carcinogenicity	Not classified.
Reproductive toxicity	Not classified. Repeated dose inhalation toxicity test showed no reproductive target organ effects, and a toxicokinetic study showed no product migration to reproductive organs.
STOT - single exposure	Not classified.
STOT - repeated exposure	Not classified.
Aspiration hazard	Based on industrial experience and available data, no aspiration hazard is expected.

11.2. Information on other hazards

11.2.1. Endocrine disrupting properties

Endocrine disrupting properties	The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher

11.2.2. Other information

Other adverse effects	No information available.

SECTION 12: Ecological information

Information given is based on data on activated carbon unless otherwise specified.

12.1. Toxicity

Ecotoxicity	Classification is based on mixture calculation methods based on component data. Toxic to aquatic life with long lasting effects.

12.2. Persistence and degradability

Persistence and degradability	Not expected to degrade.

12.3. Bioaccumulative potential

Bioaccumulation Not expected due to physicochemical properties of the substance.

12.4. Mobility in soil

Mobility Not expected to migrate. Insoluble.

12.5. Results of PBT and vPvB assessment

PBT and vPvB assessment No information available.

12.6. Endocrine disrupting properties

Endocrine disrupting properties The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

12.7. Other adverse effects

No information available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste from residues/unused products Dispose of in accordance with federal, state and local regulations. Dispose of waste in accordance with environmental legislation.

Contaminated packaging Dispose of contents/container in accordance with local, regional, national, and international regulations as applicable.

Waste codes / waste designations according to EWC / AVV Waste hierarchy to be followed (Directive 2008/98/EC on waste, article 4).

SECTION 14: Transport information

Note: This activated carbon product is made by a steam activation process.

IATA

14.1 UN number or ID number	UN3077
14.2 UN proper shipping name	Environmentally hazardous substance, solid, n.o.s. (Silver)
14.3 Transport hazard class(es)	9
14.4 Packing group	III
Description	UN3077, Environmentally hazardous substance, solid, n.o.s. (Silver), 9, III
14.5 Environmental hazards	Yes
14.6 Special precautions for user	
Special Provisions	A97, A158, A179, A197, A215
ERG Code	9L

IMDG

14.1 UN number or ID number	UN3077
14.2 UN proper shipping name	Environmentally hazardous substance, solid, n.o.s. (Silver)

14.3 Transport hazard class(es)	9
14.4 Packing group	III
Description	UN3077, Environmentally hazardous substance, solid, n.o.s. (Silver), 9, III, Marine pollutant
14.5 Environmental hazards	Yes
14.6 Special precautions for user	
Special Provisions	274, 335, 966, 967, 969
EmS-No	F-A, S-F
14.7 Maritime transport in bulk according to IMO instruments	No information available

RID

14.1 UN number or ID number	UN3077
14.2 UN proper shipping name	Environmentally hazardous substance, solid, n.o.s. (Silver)
14.3 Transport hazard class(es)	9
14.4 Packing group	III
Description	UN3077, Environmentally hazardous substance, solid, n.o.s. (Silver), 9, III
14.5 Environmental hazards	Yes
14.6 Special precautions for user	
Special Provisions	274, 335, 375, 601
Classification code	M7

ADR

14.1 UN number or ID number	UN3077
14.2 UN proper shipping name	Environmentally hazardous substance, solid, n.o.s. (Silver)
14.3 Transport hazard class(es)	9
14.4 Packing group	III
Description	UN3077, Environmentally hazardous substance, solid, n.o.s. (Silver), 9, III, (-)
14.5 Environmental hazards	Yes
14.6 Special precautions for user	
Special Provisions	274, 335, 601, 375
Classification code	M7
Tunnel restriction code	(-)

SECTION 15: Regulatory information

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

National regulations

Germany

Water hazard class (WGK)	non-hazardous to water (nwg)

International Inventories

TSCA	Complies
DSL/NDSL	Complies
EINECS/ELINCS	Complies
ENCS	Complies
IECSC	Complies
KECL	Complies
PICCS	Complies
AICS	Complies
TCSI	Complies

NZIoC	Complies

Legend:
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances
TCSI - Taiwan Chemical Substance Inventory
NZIoC - New Zealand Inventory of Chemicals

15.2. Chemical safety assessment

A Chemical Safety Assessment has been carried out for this substance.

SECTION 16: Other information

Key or legend to abbreviations and acronyms used in the safety data sheet

Legend Section 8: Exposure controls/personal protection

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value	*	Skin designation

Key literature references and sources for data used to compile the SDS
Agency for Toxic Substances and Disease Registry (ATSDR)
U.S. Environmental Protection Agency ChemView Database
European Food Safety Authority (EFSA)
EPA (Environmental Protection Agency)
Acute Exposure Guideline Level(s) (AEGL(s))
U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act
U.S. Environmental Protection Agency High Production Volume Chemicals
Food Research Journal
Hazardous Substance Database
International Uniform Chemical Information Database (IUCLID)
National Institute of Technology and Evaluation (NITE)
Australia National Industrial Chemicals Notification and Assessment Scheme (NICNAS)
NIOSH (National Institute for Occupational Safety and Health)
National Library of Medicine's ChemID Plus (NLM CIP)
National Library of Medicine’s PubMed database (NLM PUBMED)
National Toxicology Program (NTP)
New Zealand's Chemical Classification and Information Database (CCID)
Organization for Economic Co-operation and Development Environment, Health, and Safety Publications
Organization for Economic Co-operation and Development High Production Volume Chemicals Program
Organization for Economic Co-operation and Development Screening Information Data Set
World Health Organization

Prepared by:	Norit B.V. - Safety, Health and Environmental Affairs
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Disclaimer:

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End of Safety Data Sheet