Material Safety Data Sheet

according to Regulation (EC) No 1907/2006 and 1272/2008

SACHTOLITH Series

Print date: 25.09.2012
Approval date: 02.07.2012 **Revision:** 1

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

· **1.1 Product identifier**

Product Code:	SACHTOLITH Series
Types:	L, HD. HD-S
REACH Registration No.:	01-2119475779-15-0000

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

Relevant identified uses:
white pigment for paints, coating and paper, white pigment for plastics

Uses advised against:
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· **1.3 Details of the supplier of the safety data sheet**

Manufacturer / supplier:	Sachtleben Chemie GmbH Dr.-Rudolf-Sachtleben-Str. 4 D-47198 Duisburg, Germany
Phone:	+49 2066 22-0
Fax:	+49 2066 22-2000
Mail:	info@sachtleben.de
Product Safety:	w.gruener@sachtleben.de

· **1.4 Emergency telephone number**

+49 30 30686 790 Giftnotruf Berlin (German/English)
+1 800 255 3924 CHEMTEL (U S A)
+358 9 471 977 or +358 9 4711 Poison Information Center (Finland)

2. POSSIBLE HAZARDS

· **2.1 Classification of the substance or mixture**
The product is not classified hazardous according to the Regulation (EC) No 1272/2008 and the Council Directives 67/548/EEC and 99/45/EEC.

· **2.2. Label elements**
No special labelling required.

· **2.3 Other hazards**
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3. COMPOSITION/INFORMATION ON INGREDIENTS

· **3.1 Chemical Characterisation (Substance)**

Classification according to DSD-DPD / CLP

Substance identification	ID Numbers		Classification	Hazard Statemernts (R/H)
Zinc sulfide, ZnS	CAS. EINECS. INDEX: REACH Color Index.	1314-98-3 215-251-3 - 01-2119475779-15-0000 C.I. 77975 Pigment white 7	-	-

· **3.2 Chemical Characterisation (Mixture)**
Description: No mixture
Hazardous components: -

4. FIRST AID MEASURES

· **4.1 Description of first aid measures**
General indications: No hazards which require special first aid measures.
Inhalation: Move to fresh air. Give symptomatic treatment as necessary.
Skin contact: Wash with soap and water.
Eye contact: Wash with water or neutral eyewash solution.
Ingestion: Do not induce vomiting. Give up to 200 ml water. In case of persistent symptoms, consult a doctor.

· **4.2 Most important symptoms and effects, both acute and delayed**
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· **4.3 Indication of any immediate medical attention and special treatment needed**
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5. FIREFIGHTING MEASURES

· **5.1 Extinguishing media**
Suitable extinguishing media: In adaption to materials stored in the immediate neighbourhood.

· **5.2 Special hazards arising from the substance or mixture**
Non combustible. Ambient fire may liberate hazardous vapours. The following may develop in event of fire: hydrogen sulfide, sulphur oxides.

· **5.3 Advice for firefighters**
Do not stay in dangerous zone without self-contained breathing apparatus

6. ACCIDENTAL RELEASE MEASURES

· **6.1 Personal precautions, protective equipment and emergency procedures**

Avoid dust formation. Ensure adequate ventilation.

· **6.2 Environmental precautions**
Avoid dust dispersion to the environment. Dust may cause the surroundings to become white. Prevent leakages from entering drains and ditches that lead to natural waterways.

· **6.3 Methods and material for containment and cleaning up**
Use any suitable mechanical means (e.g. vacuum, sweeping), but avoid dusting during clean-up.

· **6.4 Reference to other sections**
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7. HANDLING AND STORAGE

· **7.1 Precautions for safe handling**
Avoid dust formation during handling. Provide appropriate exhaust ventilation at machinery and at places where dust can be generated. In case of insufficient ventilation, wear suitable respiratory equipment.

· **7.2 Conditions for safe storage, including any incompatibilities**

Fire Precautions:	The product is not flammable
Storage conditions/ packing material:	Keep in a dry place.
Incompatible products:	No storage near of acid

· **7.3 Specific end use(s)**
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8. EXPOSURE CONTROLS/PERSONAL PROTECTION

· **8.1 Control parameters**

Substance **CAS No.**	**Dust, inhalable**		**Dust, respirable**	
	Limit value - Eight hours mg/m³	Limit value - Short term mg/m³	Limit value - Eight hours mg/m³	Limit value - Short term mg/m³
Austria	10	20	5	10
Canada - Québec				
Denmark	10	20		
European Union				
France	**10**		**5 respirable aerosol**	
Germany (AGS)	10	20	3	6
Germany (DFG)	4		1,5	
Hungary	10		6	
Italy				
Japan				
Poland				
Spain	10		3	
Sweden	10		5	
Switzerland	10		3	
The Netherlands				
USA - OSHA	15		5	
United Kingdom				

Remarks:		
Austria		*STV 15 minutes average value
France	*Bold type: Restrictive statutory limit values	*Bold type: Restrictive statutory limit values
Germany(AGS)	*15 minutes average value, insoluble particulates	*15 minutes average value, insoluble particulates

Germany(DFG)	*long term exposure level, insoluble particulates	*insoluble particulates

(Source: GESTIS - Internationale Grenzwerte für chemische Substanzen - Institut für Arbeitsschutz der Deutschen Gesetzlichen Unfallversicherung (IFA))

The DNELs for inhalation derived under REACH for both groups are: (Inhalable fraction – Workers)

$DNEL_{inhal\ soluble\ Zn\ (worker)}$ = 1 mg Zn/m^3;

$DNEL_{inhal\ insoluble\ Zn\ (worker)}$ = 5 mg Zn/m^3;

· **8.2 Exposure controls**

Engineering measures: Maintain exposures below applicable exposure limits:

Personal Protection Equipment

Industrial hygiene measures: Keep in clean conditions. Avoid dust formation

Respiratory protection: A respirator must be used if the dust concentration is likely to exceed the Occupational exposure limit. At higher concentrations wear particle filter DIN EN 143 - P2.

Hand protection: Prolonged exposure should be avoided by wearing suitable protective gloves and clothing:

In full contact:
Glove material: nitrile rubber
Layer thickness: 0.11 mm
Breakthrough time: > 480 Min

In splash contact:
Glove material: nitrile rubber
Layer thickness 0.11 mm
Breakthrough time: > 480 Min

Eye protection: The use of an approved dustproof goggles is recommended if the dust concentration is likely to exceed the Occupational exposure limit

Skin protection: Zinc Sulfides are not irritant but as with all fine powders can absorb moisture and natural oils from the surface of the skin during prolonged exposure. Prolonged exposure should be avoided by wearing suitable protective gloves and clothing.

9. PHYSICAL AND CHEMICAL PROPERTIES

· **9.1 Information on basic physical and chemical properties**

Appearance

Physical State: powder **Colour: white** **Odour: None**

Critical Data

Melting point or range:	> 800°C (subl.)
Boiling point or range:	not applicable
Flash point:	not flammable
Ignition temperature:	not flammable
Auto-ignition temperature:	not flammable
Oxidizing properties:	none

Explosive properties:	not explosive
Explosivity or flammability limit in air:	-
Vapour pressure:	not applicable
Density:	at 20°C approx. 4 g/ml
Solubility:	at 20°C in water < 0,0005 g/l
pH-value:	approx. 7
Partition coefficient:	not applicable
Viscosity:	not applicable

· **9.2 Other information**
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10. STABILITY AND REACTIVITY

· **10.1 Reactivity**
Reacts with acids under formation of Hydrogen Sulfide

· **10.2 Chemical stability**
Stable under normal use conditions

· **10.3 Possibility of hazardous reactions**
Reaction with acids.

· **10.4 Conditions to avoid**
Temperatures > 800 °C, low pH

· **10.5 Incompatible materials**
Acids

· **10.6 Hazardous decomposition products**
Hydrogen Sulfide, Sulphur Oxides

11. TOXICOLOGICAL INFORMATION

· **11.1 Information on toxicological effects**

· **Acute toxicity:**

With LD_{50} values consistently exceeding 2,000 mg/kg bw, insoluble compounds such as, zinc sulphide (LD_{50} ranges between 5,000 and 15,000mg/kg bw) show low level of acute oral toxicity, not leading to classification for acute oral toxicity
Zinc sulphide (based on cross-reading from zinc oxide) is of low acute inhalation toxicity (i.e., LC50 values of > 5.7 mg/L/4hrs), not leading to classification for acute inhalation toxicity

· **Irritation/corrosion:**
Skin: not irritant (Sachtleben Chemie GmbH 2000b and based on cross-reading from ZnO : Löser, 1977; Lansdown, 1991)
Eye: not irritant (Sachtleben Chemie GmbH 2000c and based on cross-reading from ZnO: Van Huygevoort, 1999e; Thijssen, 1978; Löser,1977)
Respiratory tract: not irritant (based on cross-reading from ZnO: Klimish et al, 1982)

· **Sensitation:**
No sensitizing effects known (based on cross-reading from ZnO: Van Huygevoort, 1999 g,h)

· **Chronic Toxicity:**
No biologically relevant genotoxic activity (based on cross-reading between Zn compounds; no

classification for mutagenicity required) (Chemical Safety report (CSR) Zinc sulphide. 2010).

· **Further information:**
No experimental or epidemiological evidence exists for carcinogenicity, reproductive toxicity or specific target organ toxicity.

12. ECOLOGICAL INFORMATION

· **12.1 Toxicity**
12.1.1.Acute aquatic toxicity
As demonstrated by transformation/dissolution (T/D) testing according to OECD guidelines, zinc sulphide is insoluble. Applying the molecular weight correction and the results of the T/D testing (CSR), the specific reference values for acute aquatic toxicity of zinc sulphide are (based on 0.002% and 0.001% solubilisation capacity at pH 6 and pH 8, respectively (CSR ZnS 2010):
• EC_{50} for pH <7: 204 mg Zn/l (based on 48 hrs Ceriodaphnia dubia test)
• EC_{50} for pH >7-8.5: 144 mg Zn/l (based on 72 hr Selenastrum capricornutum test)

12.1.2. Chronic aquatic toxicity: freshwater
The chronic aquatic toxicity database on zinc contains high quality chronic NOEC/EC10 values on 23 species (8 taxonomic groups) obtained under a variety of conditions. These data, outlined in the CSR, were compiled in a species sensitivity distribution, from which the PNEC was derived (expressed as Zn++ion concentration). This PNEC is an added value, i.e. it is to be added to the zinc background in water, see table below.

12.1.3. Chronic aquatic toxicity: marine waters
The chronic aquatic toxicity database on zinc contains high quality chronic NOEC/EC10 values on 39 species (9 taxonomic groups) obtained under a variety of conditions. These data, outlined in the CSR, were compiled in a species sensitivity distribution, from which the PNEC was derived (expressed as Zn++ion concentration). This PNEC is an added value, to be added on the zinc background in water, see table below.

12.1.4. Sediment toxicity
The chronic toxicity of zinc to sediment organisms in the freshwater was assessed based on a database containing high quality chronic NOEC/EC10 values on 7 benthic species obtained under a variety of conditions. These data, outlined in the CSR, were compiled in a species sensitivity distribution, from which the PNEC was derived (expressed as total Zn contained in the sediment). This PNEC is an added value, to be added on the zinc background in the sediment, see table below. For the marine sediments, a PNEC was derived using the equilibrium partitioning approach, see table below.

12.1.5. Soil toxicity
The chronic toxicity of zinc to soil organisms was assessed based on a database containing high quality chronic NOEC/EC10 values on 18 plant species, 8 invertebrate species and 17 microbioal processes, obtained under a variety of conditions. These data, outlined in the CSR, were compiled in a species sensitivity distribution, from which the PNEC was derived (expressed as total Zn contained in the soil). This PNEC is an added value, to be added on the zinc background in the soil, see table below.

12.1.6. Toxicity to micro-organisms in STP
The PNEC for STP was derived by applying an assessment factor to the lowest relevant toxicity value: 5,2mg Zn/l (Dutka et al., 1983)

PNECs for zinc

Environmental compartment	PNEC value for Zn

Freshwater	20.6* µg/L
Saltwater	6.1* µg/L
Freshwater sediment	235.6 mg/kg sediment dry weight**.
Saltwater sediment	113 mg/kg sediment dry weight**
Soil	106.8 mg/kg soil dry weight***.
STP	52 µg/L

*added value, « PNECadd »
**A generic bioavailability factor of 0.5 is applied by default, according to the EU risk assessment (ECB 2008)
*** A generic bioavailability/ageing factor of 3 is applied by default (ECB 2008).

· **12.2 Persistence and degradability**
Zinc is an element, and as such the criterion “persistence” is not relevant for the metal and its inorganic compounds in a way as it is applied to organic substances. An analysis on the removal of zinc from the water column has been presented as a surrogate for persistence. The rapid removal of zinc from the water column is documented in the CSR. So, zinc and zinc compounds do not meet this criterion, neither.

· **12.3 Bioaccumulative potential**
Zinc is a natural, essential element, which is needed for the optimal growth and development of all living organisms, including man. All living organisms have homeostasis mechanisms that actively regulate zinc uptake and absorption/excretion from the body; due to this regulation, zinc and zinc compounds do not bioaccumulate or biomagnify.

· **12.4 Mobility in soil**
For zinc (like for other metals) the transport and distribution over the different environmental compartments e.g. the water (dissolved fraction, fraction bound to suspended matter), soil (fraction bound or complexed to the soil particles, fraction in the soil pore water,...) is described and quantified by the metal partition coefficients between these different fractions. In the CSR, a solids-water partitioning coefficient of 158.5 l/kg (log value 2.2) was applied for zinc in soils (CSR zinc 2010).

· **12.5 Results of PBT and vPvB assessment**
Considering the items 12.2. and 12.3. above, zinc and zinc compounds are not PBT or vPvB.

· **12.6 Other adverse effects**

13. DISPOSAL CONSIDERATIONS

· **13.1 Waste treatment methods**

Product:	No hazardous waste according to European Directive 91/689/EEC. Place in an appropriate disposal facility in compliance with local and national regulations.
Contaminated packaging:	Containers that cannot be cleaned must be treated as waste and disposed of in an approved industrial incineration facility. The empty and clean containers may be reused in conformity with regulations.
Cleanser:	water

14. TRANSPORT INFORMATION

· **14.1 UN number**

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· **14.2 UN proper shipping name**
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· **14.3 Transport hazard class(es)**
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· **14.4 Packing group**
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· **14.5 Environmental hazards**
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· **14.6 Special precautions for user**
The product is not classified as a hazardous material according to the ADR/RID, IMDG, IATA on the transport of dangerous or hazardous goods.

· **14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**
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15. REGULATORY INFORMATION

· **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
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· **National Regulations**
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· **15.2 Chemical safety assessment**
The substance has undergone a safety assessment.

16. OTHER INFORMATION

· **Changes against last version**
Adaption to directive 453/2010/EC

· **Hazard information which is referred to in section 2 or 3**
According to Regulation (EC) No 1907/2006:
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According to Directive (EC) 67/548/EWG:
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(2011-ZS-001-EN)

The data given here are based on current knowledge and experience. The purpose of this Material Safety Data Sheet is to describe the product in terms of its safety requirements. The data do not signify any warranty with regard to the product's properties.