

according to Regulation (EC) No. 1907/2006

Creation Date 05-Dec-2011 Revision Date 19-Oct-2023 Revision Number 10

# SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

#### 1.1. Product identifier

Product Description: <u>Aluminium sulfate hexadecahydrate</u>

Cat No.: A/2520/61

**Synonyms** Aluminum sulfate hexadecahydrate.

**CAS No** 16828-11-8

Molecular Formula Al2(SO4)3.nH2O

**REACH registration number** 01-2119531538-36 (for the anhydrous form)

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

Recommended Use Laboratory chemicals.
Uses advised against No Information available

## 1.3. Details of the supplier of the safety data sheet

Company

EU entity/business name Thermo Fisher Scientific

Janssen Pharmaceuticalaan 3a

2440 Geel, Belgium

UK entity/business name

Fisher Scientific UK

Bishop Meadow Road, Loughborough, Leicestershire LE11 5RG, United Kingdom

**Swiss distributor -** Fisher Scientific AG Neuhofstrasse 11, CH 4153 Reinach

Tel: +41 (0) 56 618 41 11

e-mail - infoch@thermofisher.com

**E-mail address** begel.sdsdesk@thermofisher.com

1.4. Emergency telephone number

Chemtrec US: (800) 424-9300 Chemtrec EU: 001-703-527-3887

For customers in Switzerland:

Tox Info Suisse Emergency Number: 145 (24hr)

Tox Info Suisse: +41-44 251 51 51 (Emergency number from abroad)

Chemtrec (24h) Toll-Free: 0800 564 402 Chemtrec Local: +41-43 508 20 11 (Zurich)

Tel: 01509 231166

## **SECTION 2: HAZARDS IDENTIFICATION**

#### 2.1. Classification of the substance or mixture

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#### CLP Classification - Regulation (EC) No 1272/2008

#### **Physical hazards**

Substances/mixtures corrosive to metal Category 1 (H290)

**Health hazards** 

Serious Eye Damage/Eye Irritation Category 1 (H318)

**Environmental hazards** 

Based on available data, the classification criteria are not met

Full text of Hazard Statements: see section 16

#### 2.2. Label elements



Signal Word

**Danger** 

#### **Hazard Statements**

H290 - May be corrosive to metals H318 - Causes serious eye damage

## **Precautionary Statements**

P280 - Wear protective gloves/protective clothing/eye protection/face protection

P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

P310 - Immediately call a POISON CENTER or doctor/physician

#### 2.3. Other hazards

This product does not contain any known or suspected endocrine disruptors

## **SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS**

#### 3.1. Substances

Component	CAS No	EC No	Weight %	CLP Classification - Regulation (EC) No 1272/2008
Sulfuric acid, aluminium salt (3:2),	16828-11-8		100	Eye Dam. 1 (H318)
hexadecahydrate				Met. Corr. 1 (H290)
Sulfuric acid, aluminum salt (3:2)	10043-01-3	EEC No. 233-135-0	-	Eye Dam. 1 (H318)

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REACH registration number 01-2119531538-36 (for the anhydrous form)

Full text of Hazard Statements: see section 16

#### **SECTION 4: FIRST AID MEASURES**

#### 4.1. Description of first aid measures

General Advice If symptoms persist, call a physician.

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get

medical attention.

**Skin Contact** Wash off immediately with plenty of water for at least 15 minutes. Get medical attention.

Ingestion Clean mouth with water and drink afterwards plenty of water. Get medical attention if

symptoms occur.

**Inhalation** Remove to fresh air. If breathing is difficult, give oxygen. Get medical attention.

**Self-Protection of the First Aider** Use personal protective equipment as required.

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

None reasonably foreseeable. Causes eye burns.

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

Notes to Physician Treat symptomatically.

#### **SECTION 5: FIREFIGHTING MEASURES**

#### 5.1. Extinguishing media

## Suitable Extinguishing Media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Water spray, carbon dioxide (CO2), dry chemical, alcohol-resistant foam.

#### Extinguishing media which must not be used for safety reasons

No information available.

#### 5.2. Special hazards arising from the substance or mixture

Thermal decomposition can lead to release of irritating gases and vapors.

## **Hazardous Combustion Products**

Sulfur oxides.

## 5.3. Advice for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

## **SECTION 6: ACCIDENTAL RELEASE MEASURES**

#### Aluminium sulfate hexadecahydrate

#### 6.1. Personal precautions, protective equipment and emergency procedures

Ensure adequate ventilation. Use personal protective equipment as required. Avoid dust formation.

#### 6.2. Environmental precautions

Should not be released into the environment. See Section 12 for additional Ecological Information.

#### 6.3. Methods and material for containment and cleaning up

Sweep up and shovel into suitable containers for disposal. Keep in suitable, closed containers for disposal.

#### 6.4. Reference to other sections

Refer to protective measures listed in Sections 8 and 13.

#### **SECTION 7: HANDLING AND STORAGE**

#### 7.1. Precautions for safe handling

Wear personal protective equipment/face protection. Ensure adequate ventilation. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation. Avoid dust formation.

#### **Hygiene Measures**

Handle in accordance with good industrial hygiene and safety practice.

#### 7.2. Conditions for safe storage, including any incompatibilities

Keep containers tightly closed in a dry, cool and well-ventilated place. Do not store in metal containers.

**Technical Rules for Hazardous Substances (TRGS) 510** 

Storage Class (LGK) (Germany)

Storage Class/LGK 13

Switzerland - Storage of hazardous substances

Storage class - SC 11/13

https://www.kvu.ch/de/themen/stoffe-und-produkte https://www.kvu.ch/fr/themes/substances-et-produits https://www.kvu.ch/it/temi/sostanze-e-prodotti

## 7.3. Specific end use(s)

Use in laboratories

## **SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**

#### 8.1. Control parameters

#### **Exposure limits**

List source(s): **UK** - EH40/2005 Work Exposure Limits, Forth edition. Published 2020. **CH** - The Government of Switzerland has set a directive on limit values for working materials (Grenzwerte am Arbeitsplatz) which is based on the Swiss Federal Regulation "Verordnung über die Verhütung von Unfällen und Berufskrankheiten". This directive is administered, periodically revised and enforced by SUVA (Swiss National Accident Insurance Fund).

Component	European Union	The United Kingdom	France	Belgium	Spain
Sulfuric acid,		STEL: 6 mg/m <sup>3</sup> 15 min	TWA / VME: 2 mg/m <sup>3</sup> (8		
aluminium salt (3:2),		TWA: 2 mg/m <sup>3</sup> 8 hr	heures).		
hexadecahydrate		_	·		
Sulfuric acid,		STEL: 6 mg/m <sup>3</sup> 15 min	TWA / VME: 2 mg/m <sup>3</sup> (8		
aluminum salt (3:2)		TWA: 2 mg/m <sup>3</sup> 8 hr	heures).		

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Component	Italy	Germany	Portugal	The Netherlands	Finland
Sulfuric acid,					TWA: 1 mg/m <sup>3</sup> 8
aluminum salt (3:2)					tunteina

Component	Austria	Denmark	Switzerland	Poland	Norway
Sulfuric acid,			TWA: 2 mg/m <sup>3</sup> 8		TWA: 2 mg/m <sup>3</sup> 8 timer
aluminium salt (3:2),			Stunden		_
hexadecahydrate					
Sulfuric acid,			TWA: 2 mg/m <sup>3</sup> 8		TWA: 2 mg/m <sup>3</sup> 8 timer
aluminum salt (3:2)			Stunden		<u> </u>

Component	Russia	Slovak Republic	Slovenia	Sweden	Turkey
Sulfuric acid,	TWA: 0.5 mg/m <sup>3</sup> 0041				
aluminum salt (3:2)	MAC: 2 mg/m <sup>3</sup>				

#### **Biological limit values**

This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies

#### Monitoring methods

BS EN 14042:2003 Title Identifier: Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents.

MDHS14/3 General methods for sampling and gravimetric analysis of respirable and inhalable dust

## Derived No Effect Level (DNEL) / Derived Minimum Effect Level (DMEL)

See table for values; (for the anhydrous form)

#### **Predicted No Effect Concentration (PNEC)**

See values below.

#### 8.2. Exposure controls

## **Engineering Measures**

Ensure that eyewash stations and safety showers are close to the workstation location. Ensure adequate ventilation, especially in confined areas.

Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

#### Personal protective equipment

**Eye Protection** Goggles (European standard - EN 166)

Hand Protection Protective gloves

Γ	Glove material	Breakthrough time	Glove thickness	EU standard	Glove comments
	Neoprene	See manufacturers		EN 374	(minimum requirement)
L		recommendations			

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PVC -Natural rubber

**Skin and body protection** Long sleeved clothing.

Inspect gloves before use. observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information) gloves are suitable for the task: Chemical compatability, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion. gloves with care avoiding skin contamination.

Respiratory Protection When workers are facing concentrations above the exposure limit they must use

appropriate certified respirators.

To protect the wearer, respiratory protective equipment must be the correct fit and be used

and maintained properly

Large scale/emergency use Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits

are exceeded or if irritation or other symptoms are experienced **Recommended Filter type:** Particulates filter conforming to EN 143

Small scale/Laboratory use Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure

limits are exceeded or if irritation or other symptoms are experienced.

Solid

**Recommended half mask:-** Particle filtering: EN149:2001 When RPE is used a face piece Fit Test should be conducted

**Environmental exposure controls** No information available.

## **SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES**

#### 9.1. Information on basic physical and chemical properties

Physical State Solid

**Appearance** White

Odor
Odor No information available
No data available
Melting Point/Range
Softening Point
Boiling Point/Range
No information available
No information available

Flammability (liquid) Not applicable

Flammability (solid, gas) No information available

Explosion Limits No data available

Flash Point Not applicable Method - No information available

Autoignition Temperature

No data available

Decomposition Temperature

No data available

pH 2.5 (313 g/l @ 20°C)

Viscosity Not applicable Solid

Water Solubility Soluble

Solubility in other solvents No information available

Partition Coefficient (n-octanol/water)

Vapor PressureNo data availableDensity / Specific GravityNo data availableBulk Density1690 kg/m³

Vapor Density Not applicable Solid

Particle characteristics No data available

9.2. Other information

Molecular Formula Al2(SO4)3.nH2O

Molecular Weight 342.14

Evaporation Rate Not applicable - Solid

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## **SECTION 10: STABILITY AND REACTIVITY**

10.1. Reactivity

None known, based on information available

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

**Hazardous Polymerization** Hazardous polymerization does not occur.

**Hazardous Reactions**None under normal processing.

10.4. Conditions to avoid

Incompatible products. Excess heat. Avoid dust formation.

10.5. Incompatible materials

Strong oxidizing agents. Aluminium. Metals.

10.6. Hazardous decomposition products

Sulfur oxides.

## **SECTION 11: TOXICOLOGICAL INFORMATION**

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

#### **Product Information**

(a) acute toxicity;

Oral Based on available data, the classification criteria are not met Dermal Based on available data, the classification criteria are not met Inhalation Based on available data, the classification criteria are not met

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Sulfuric acid, aluminum salt (3:2)	6207 mg/kg (Mouse)	>5 g/kg ( Rabbit)	-

(b) skin corrosion/irritation; No data available

(c) serious eye damage/irritation; Category 1

(d) respiratory or skin sensitization;

Respiratory No data available Skin No data available

(e) germ cell mutagenicity; No data available

(f) carcinogenicity; No data available

There are no known carcinogenic chemicals in this product

(g) reproductive toxicity; No data available

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(h) STOT-single exposure; No data available

(i) STOT-repeated exposure; No data available

Target Organs No information available.

(j) aspiration hazard; Not applicable

Solid

Symptoms / effects,both acute and No information available.

delayed

11.2. Information on other hazards

Endocrine Disrupting Properties Assess endocrine disrupting properties for human health. This product does not contain any

known or suspected endocrine disruptors.

## **SECTION 12: ECOLOGICAL INFORMATION**

12.1. Toxicity Ecotoxicity effects

ComponentFreshwater FishWater FleaFreshwater AlgaeSulfuric acid, aluminum salt (3:2)LC50: = 27.9 mg/L, 96h static<br/>(Pimephales promelas)136 mg/L EC50 15 min<br/>38.2 mg/L EC50 48h

12.2. Persistence and degradability

**Persistence** Soluble in water, Persistence is unlikely, based on information available.

**Degradability** Not relevant for inorganic substances, hydrolyses.

12.3. Bioaccumulative potential Bioaccumulation is unlikely

	Component	log Pow	Bioconcentration factor (BCF)
Sulfuric ac	id, aluminum salt (3:2)		>=76 - <=190 dimensionless
	` ,		362 dimensionless

12.4. Mobility in soil

The product is water soluble, and may spread in water systems Will likely be mobile in the

environment due to its water solubility. Highly mobile in soils

12.5. Results of PBT and vPvB

<u>assessment</u>

No data available for assessment.

12.6. Endocrine disrupting

properties

Endocrine Disruptor Information This product does not contain any known or suspected endocrine disruptors

12.7. Other adverse effects

Persistent Organic Pollutant
Ozone Depletion Potential

This product does not contain any known or suspected substance
This product does not contain any known or suspected substance

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#### **SECTION 13: DISPOSAL CONSIDERATIONS**

13.1. Waste treatment methods

Waste from Residues/Unused

**Products** 

Should not be released into the environment. Dispose of in accordance with local regulations. Waste is classified as hazardous. Dispose of in accordance with the European

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Directives on waste and hazardous waste.

Contaminated Packaging Dispose of this container to hazardous or special waste collection point.

European Waste Catalogue (EWC) According to the European Waste Catalog, Waste Codes are not product specific, but

application specific.

Other Information Waste codes should be assigned by the user based on the application for which the product

was used. Do not empty into drains. Do not flush to sewer.

Switzerland - Waste Ordinance Disposal should be in accordance with applicable regional, national and local laws and

regulations. Ordinance on the Avoidance and the Disposal of Waste (Waste Ordinance,

ADWO) SR 814.600

https://www.fedlex.admin.ch/eli/cc/2015/891/en

## **SECTION 14: TRANSPORT INFORMATION**

#### IMDG/IMO

**14.1. UN number** UN3260

**14.2. UN proper shipping name** Corrosive solid, acidic, inorganic, n.o.s.

Technical Shipping Name Aluminium sulfate

14.3. Transport hazard class(es) 8 14.4. Packing group III

<u>ADR</u>

**14.1. UN number** UN3260

**14.2. UN proper shipping name** Corrosive solid, acidic, inorganic, n.o.s.

Technical Shipping Name Aluminium sulfate

14.3. Transport hazard class(es)
14.4. Packing group

III

IATA

**14.1. UN number** UN3260

**14.2. UN proper shipping name** Corrosive solid, acidic, inorganic, n.o.s.

Technical Shipping Name Aluminium sulfate

14.3. Transport hazard class(es) 8 14.4. Packing group III

14.5. Environmental hazards No hazards identified

14.6. Special precautions for user No special precautions required.

14.7. Maritime transport in bulk Not applicable, packaged goods according to IMO instruments

## SECTION 15: REGULATORY INFORMATION

#### Aluminium sulfate hexadecahydrate

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

## **International Inventories**

Europe (EINECS/ELINCS/NLP), China (IECSC), Taiwan (TCSI), Korea (KECL), Japan (ENCS), Japan (ISHL), Canada (DSL/NDSL), Australia (AICS), New Zealand (NZIoC), Philippines (PICCS). US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)

Component	CAS No	EINECS	ELINCS	NLP	IECSC	TCSI	KECL	ENCS	ISHL
Sulfuric acid, aluminium salt (3:2), hexadecahydrate	16828-11-8	-	-	-	-	Х	-	-	-
Sulfuric acid, aluminum salt (3:2)	10043-01-3	233-135-0	-	-	Х	Х	KE-01042	Х	Х

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	DSL	NDSL	AICS	NZIoC	PICCS
Sulfuric acid, aluminium salt (3:2), hexadecahydrate	16828-11-8	-	-	-	-	Х	Х	Х
Sulfuric acid, aluminum salt (3:2)	10043-01-3	Χ	ACTIVE	Χ	-	Χ	Χ	Χ

Legend: X - Listed '-' - Not Listed

KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

#### Authorisation/Restrictions according to EU REACH

Not applicable

Component	CAS No	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization		REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Sulfuric acid, aluminium salt (3:2), hexadecahydrate	16828-11-8	-	-	-
Sulfuric acid, aluminum salt (3:2)	10043-01-3	-	-	-

#### Seveso III Directive (2012/18/EC)

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements
Sulfuric acid, aluminium salt (3:2), hexadecahydrate	16828-11-8	Not applicable	Not applicable
Sulfuric acid, aluminum salt (3:2)	10043-01-3	Not applicable	Not applicable

Regulation (EC) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of dangerous chemicals

Not applicable

Contains component(s) that meet a 'definition' of per & poly fluoroalkyl substance (PFAS)?

Not applicable

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work .

#### **National Regulations**

**UK** - Take note of Control of Substances Hazardous to Health Regulations (COSHH) 2002 and 2005 Amendment

WGK Classification See table for values

Component Germany - Water Classification (AwSV) Germany - TA-Luft Class
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#### Aluminium sulfate hexadecahydrate

Sulfuric acid, aluminum salt (3:2) WGK1

#### **Swiss Regulations**

Article 4 para. 4 of the Ordinance on the protection of young people in the workplace (SR 822.115) and Article 1 lit. f of the EAER regulation on hazardous work and young people (SR 822.115.2).

Take note on Article 13 Maternity Ordinance (SR 822.111.52) with regards expectant and nursing mothers.

#### 15.2. Chemical safety assessment

A Chemical Safety Assessment/Report (CSA/CSR) has not been conducted

#### **SECTION 16: OTHER INFORMATION**

#### Full text of H-Statements referred to under sections 2 and 3

H290 - May be corrosive to metals H318 - Causes serious eye damage

#### Legend

Substances List

**ENCS** - Japanese Existing and New Chemical Substances

ICAO/IATA - International Civil Aviation Organization/International Air

MARPOL - International Convention for the Prevention of Pollution from

AICS - Australian Inventory of Chemical Substances

IARC - International Agency for Research on Cancer

NZIoC - New Zealand Inventory of Chemicals

Predicted No Effect Concentration (PNEC)

POW - Partition coefficient Octanol:Water

vPvB - very Persistent, very Bioaccumulative

EC50 - Effective Concentration 50%

TWA - Time Weighted Average

LD50 - Lethal Dose 50%

Transport Association

ATE - Acute Toxicity Estimate

VOC - (volatile organic compound)

CAS - Chemical Abstracts Service

TSCA - United States Toxic Substances Control Act Section 8(b)
Inventory

EINECS/ELINCS - European Inventory of Existing Commercial Chemical DSL/NDSL - Canadian Domestic Substances List/Non-Domestic

Substances/EU List of Notified Chemical Substances

**PICCS** - Philippines Inventory of Chemicals and Chemical Substances

IECSC - Chinese Inventory of Existing Chemical Substances

**KECL** - Korean Existing and Evaluated Chemical Substances

WEL - Workplace Exposure Limit

**ACGIH** - American Conference of Governmental Industrial Hygienists

**DNEL** - Derived No Effect Level

**RPE** - Respiratory Protective Equipment

LC50 - Lethal Concentration 50%

**NOEC** - No Observed Effect Concentration

PBT - Persistent, Bioaccumulative, Toxic

ADR - European Agreement Concerning the International Carriage of

Dangerous Goods by Road

IMO/IMDG - International Maritime Organization/International Maritime

Dangerous Goods Code

**OECD** - Organisation for Economic Co-operation and Development

**BCF** - Bioconcentration factor

Key literature references and sources for data

https://echa.europa.eu/information-on-chemicals

Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

Training Advice

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.

Ships

Use of personal protective equipment, covering appropriate selection, compatibility, breakthrough thresholds, care, maintenance, fit and standards.

First aid for chemical exposure, including the use of eye wash and safety showers.

Creation Date05-Dec-2011Revision Date19-Oct-2023Revision SummaryNot applicable.

This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006. COMMISSION REGULATION (EU) 2020/878 amending Annex II to Regulation (EC) No

FSUA2520

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#### 1907/2006

For Switzerland - Compiled in accordance with the technical provisions referred to in Annex 2, Number 3, ChemO (SR 813.11 - Ordinance on Protection against Dangerous Substances and Preparations).

#### Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

## **End of Safety Data Sheet**