

Safety Data Sheet

according to Regulation (EC) No
1907/2006

Lithiumhydroxidlösung 4 mol/l zur pH-Wert-Einstellung

Revision date: 27.05.2024

Product code: 33940

Page 1 of 15

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

1.1. Product identifier

Lithiumhydroxidlösung 4 mol/l zur pH-Wert-Einstellung

UFI: 8WY0-F30E-Q00C-RH7V

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

Use of the substance/mixture

Laboratory chemicals

Industrial uses: Uses of substances as such or in preparations at industrial sites

Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

Uses advised against

Do not use for private purposes (household).

1.3. Details of the supplier of the safety data sheet

Company name:	AnalytiChem GmbH ACD	
Street:	Stempelstraße 6	
Place:	D-47167 Duisburg	
Telephone:	0203/5194-0	Telefax: 0203/5194-290
E-mail:	info@analytichem.de	
Contact person:	Abteilung Produktsicherheit	Telephone: 0203/5194-107/117
E-mail:	produktsicherheit@analytichem.de	
Internet:	www.analytichem.de	
Responsible Department:	Abteilung Produktsicherheit	

1.4. Emergency

telephone number:

For Hazardous Materials [or Dangerous Goods]
Incidents Spill, Leak, Fire, Exposure, or
Accident Call CHEMTREC Day or Night Within USA
and Canada: 1-800-424-9300 Outside USA and
Canada: +1 703-741-5970 (collect calls accepted)

Further Information

This product is a mixture. REACH Registration Number see section 3.

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Regulation (EC) No 1272/2008

Skin Corr. 1B; H314

Eye Dam. 1; H318

Full text of hazard statements: see SECTION 16.

2.2. Label elements

Regulation (EC) No 1272/2008

Hazard components for labelling

Lithiumhydroxid-Monohydrat

Safety Data Sheet

according to Regulation (EC) No
1907/2006

Lithiumhydroxidlösung 4 mol/l zur pH-Wert-Einstellung

Revision date: 27.05.2024

Product code: 33940

Page 2 of 15

Signal word: Danger

Pictograms:



Hazard statements

H314 Causes severe skin burns and eye damage.

Precautionary statements

- P260 Do not breathe dust/fume/gas/mist/vapours/spray.
 P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.
 P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
 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/doctor.

2.3. Other hazards

No information available.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Chemical characterization

Mixtures in aqueous solution

Relevant ingredients

CAS No	Chemical name	Quantity
	EC No	Index No
	REACH No	
	Classification (Regulation (EC) No 1272/2008)	
1310-66-3	Lithiumhydroxid-Monohydrat	15 - < 20 %
		01-2119560576-31
	Acute Tox. 4, Skin Corr. 1B, Eye Dam. 1; H302 H314 H318	

Full text of H and EUH statements: see section 16.

Specific Conc. Limits, M-factors and ATE

CAS No	EC No	Chemical name	Quantity
		Specific Conc. Limits, M-factors and ATE	
1310-66-3		Lithiumhydroxid-Monohydrat	15 - < 20 %
		inhalation: LC50 = > 6,15 mg/l (dusts or mists); dermal: LD50 = > 2000 mg/kg; oral: LD50 = 363 mg/kg	

Further Information

This product does not contain substances of very high concern according to Regulation (EC) No 1907/2006 (REACH), Article 57 above the respective regulatory concentration limit of = 0.1 % (w/w).

Safety Data Sheet

according to Regulation (EC) No
1907/2006

Lithiumhydroxidlösung 4 mol/l zur pH-Wert-Einstellung

Revision date: 27.05.2024

Product code: 33940

Page 3 of 15

SECTION 4: First aid measures

4.1. Description of first aid measures

General information

First aider: Pay attention to self-protection!

After inhalation

Provide fresh air.

Call a physician immediately.

After contact with skin

Wash immediately with: Water

Take off immediately all contaminated clothing and wash it before reuse.

Call a physician immediately.

After contact with eyes

In case of contact with eyes flush immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart and consult an ophthalmologist.

Remove contact lenses, if present and easy to do. Continue rinsing.

Protect uninjured eye.

After ingestion

Rinse mouth immediately and drink plenty of water.

Adverse human health effects and symptoms: Gastric perforation.

Call a physician immediately. Do not allow a neutralisation agent to be drunk.

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

Dizziness

Gastrointestinal complaints

Vomiting

Cyanosis (blue coloured blood)

Dyspnoea

May cause damage to organs. (kidneys, thyroid gland, central nervous system)

Extremely damaging effect on the tissue of the mucous membranes and upper respiratory tract, as well as on the eyes and skin.

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

No data available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Co-ordinate fire-fighting measures to the fire surroundings.

Unsuitable extinguishing media

no restriction

5.2. Special hazards arising from the substance or mixture

Non-flammable.

5.3. Advice for firefighters

Wear a self-contained breathing apparatus and chemical protective

Safety Data Sheet

according to Regulation (EC) No
1907/2006

Lithiumhydroxidlösung 4 mol/l zur pH-Wert-Einstellung

Revision date: 27.05.2024

Product code: 33940

Page 4 of 15

clothing.

Avoid contact with skin, eyes and clothes.

Additional information

Suppress gases/vapours/mists with water spray jet.

Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General advice

Avoid contact with skin, eyes and clothes. Do not breathe vapour/aerosol.

For non-emergency personnel

Provide adequate ventilation.

Use personal protection equipment.

Avoid contact with skin, eyes and clothes.

Remove persons to safety.

Emergency procedures

Consult an expert

Do not breathe dust/fume/gas/mist/vapours/spray.

For emergency responders

Precautionary statements For emergency responders : Personal protection equipment: see section 8

6.2. Environmental precautions

Do not allow to enter into surface water or drains.

6.3. Methods and material for containment and cleaning up

For containment

Cover drains.

Prevent spread over a wide area (e.g. by containment or oil barriers).

Collect in closed and suitable containers for disposal.

Absorb with liquid-binding material (sand, diatomaceous earth, acid- or universal binding agents).

For cleaning up

Clean contaminated articles and floor according to the environmental legislation.

Other information

Provide adequate ventilation.

Do not breathe dust/fume/gas/mist/vapours/spray.

Wear breathing apparatus if exposed to vapours/dusts/aerosols.

6.4. Reference to other sections

Safe handling: see section 7

Personal protection equipment: see section 8

Disposal: see section 13

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Safety Data Sheet

according to Regulation (EC) No
1907/2006

Lithiumhydroxidlösung 4 mol/l zur pH-Wert-Einstellung

Revision date: 27.05.2024

Product code: 33940

Page 5 of 15

Advice on safe handling

Read label before use. Handle and open container with care.
When using do not eat, drink, smoke, sniff. Use personal protection equipment.
Provide adequate ventilation. Avoid contact with skin, eyes and clothes.
Do not breathe vapour/aerosol.
Use extractor hood (laboratory).

Advice on protection against fire and explosion

Usual measures for fire prevention.

Advice on general occupational hygiene

Remove contaminated, saturated clothing immediately. Draw up and observe skin protection programme. Wash hands and face before breaks and after work and take a shower if necessary. When using do not eat or drink.
If handled uncovered, arrangements with local exhaust ventilation have to be used.
The choice of body protection depends on the concentration and quantity of hazardous substances. The chemical resistance of protective agents must be clarified with their suppliers.

Further information on handling

Draw up and observe skin protection programme.
Wash hands and face before breaks and after work and take a shower if necessary.
Take off immediately all contaminated clothing and wash it before reuse.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

Corrosive to metals.
Unsuitable container/equipment material: Metal, Aluminium, Tin, Zinc
Provide adequate ventilation as well as local exhaustion at critical locations.

Further information on storage conditions

Store in a dry place.
Keep container tightly closed.

7.3. Specific end use(s)

Laboratory chemicals

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Safety Data Sheet

according to Regulation (EC) No
1907/2006

Lithiumhydroxidlösung 4 mol/l zur pH-Wert-Einstellung

Revision date: 27.05.2024

Product code: 33940

Page 6 of 15

DNEL/DMEL values

CAS No	Substance		
DNEL type	Exposure route	Effect	Value
1310-66 -3	Lithiumhydroxid-Monohydrat		
Worker DNEL, long-term	inhalation	systemic	10 mg/m ³
Worker DNEL, acute	inhalation	systemic	30 mg/m ³
Worker DNEL, long-term	dermal	systemic	41,35 mg/kg bw/day
Worker DNEL, acute	dermal	systemic	100 mg/kg bw/day
Consumer DNEL, long-term	inhalation	systemic	6,21 mg/m ³
Consumer DNEL, long-term	dermal	systemic	41,35 mg/kg bw/day
Consumer DNEL, long-term	oral	systemic	4,13 mg/kg bw/day
Consumer DNEL, acute	oral	systemic	12,4 mg/kg bw/day

PNEC values

CAS No	Substance	
Environmental compartment	Value	
1310-66 -3	Lithiumhydroxid-Monohydrat	
Freshwater	2,3 mg/l	
Freshwater (intermittent releases)	0,344 mg/l	
Marine water	0,23 mg/l	
Freshwater sediment	9 mg/kg	
Marine sediment	0,9 mg/kg	
Micro-organisms in sewage treatment plants (STP)	79,2 mg/l	
Soil	0,45 mg/kg	

8.2. Exposure controls

Appropriate engineering controls

- Do not breathe vapour/aerosol.
- If handled uncovered, arrangements with local exhaust ventilation have to be used.
- Technical measures and the application of suitable work processes have priority over personal protection equipment.

Individual protection measures, such as personal protective equipment

Eye/face protection

Wear eye/face protection.

Hand protection

Protective gloves are recommended Company KCL GmbH, D-36124

Safety Data Sheet

according to Regulation (EC) No
1907/2006

Lithiumhydroxidlösung 4 mol/l zur pH-Wert-Einstellung

Revision date: 27.05.2024

Product code: 33940

Page 7 of 15

Eichenzell, email: vertrieb@kcl.de With specification (test according to EN374):

By long-term hand contact

Recommended glove articles: KCL 741 Dermatrill® L
Recommended material: NBR (Nitrile rubber) 0,11 mm
Wearing time with permanent contact: > 480 min

By short-term hand contact

Recommended glove articles: KCL 741 Dermatrill® L
Recommended material: NBR (Nitrile rubber) 0,11 mm
Wearing time with occasional contact (splashes): > 480 min

The breakthrough times stated above were determined by KCL in laboratory tests acc. to EN374 with samples of the recommended glove types. This recommendation applies only to the product stated in the safety data sheet (>,<) supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Skin protection

Wear suitable protective clothing.

Respiratory protection

Respiratory protection necessary at: aerosol or mist formation
The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

Thermal hazards

No data available

Environmental exposure controls

Do not allow to enter into surface water or drains.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state:	Liquid	
Colour:	colourless	
Odour:	odourless	
Odour threshold:	No data available	
Melting point/freezing point:		No data available
Boiling point or initial boiling point and boiling range:		No data available
Flammability:		not applicable
Lower explosion limits:		not determined
Upper explosion limits:		not determined
Flash point:		not applicable

Safety Data Sheet

according to Regulation (EC) No
1907/2006

Lithiumhydroxidlösung 4 mol/l zur pH-Wert-Einstellung

Revision date: 27.05.2024

Product code: 33940

Page 8 of 15

Auto-ignition temperature:	not determined
Decomposition temperature:	not determined
pH-Value:	10,7
Viscosity / kinematic:	No data available
Water solubility:	No data available
Solubility in other solvents	
not determined	
Dissolution rate:	No data available
Partition coefficient n-octanol/water:	not determined
Dispersion stability:	No data available
Vapour pressure:	No data available
Vapour pressure:	No data available
Density (at 20 °C):	1,0905 g/cm ³
Relative density:	No data available
Bulk density:	No data available
Relative vapour density:	not determined
Particle characteristics:	No data available

9.2. Other information

Information with regard to physical hazard classes

Explosive properties	
No data available	
Sustaining combustion:	No data available
Self-ignition temperature	
Solid:	not applicable
Gas:	not applicable
Oxidizing properties	
Not oxidising.	

Other safety characteristics

Evaporation rate:	No data available
Solvent separation test:	No data available
Solvent content:	No data available
Solid content:	No data available
Sublimation point:	No data available
Softening point:	No data available
Pour point:	No data available
No data available:	
Viscosity / dynamic:	No data available
Flow time:	No data available

Further Information

No data available

SECTION 10: Stability and reactivity

10.1. Reactivity

Corrosive to metals.

Safety Data Sheet

according to Regulation (EC) No
1907/2006

Lithiumhydroxidlösung 4 mol/l zur pH-Wert-Einstellung

Revision date: 27.05.2024

Product code: 33940

Page 9 of 15

10.2. Chemical stability

No data available

10.3. Possibility of hazardous reactions

Oxidising agent, strong
Acid
Aluminium
Zinc
Ammonium compounds

10.4. Conditions to avoid

No data available

10.5. Incompatible materials

Metal

10.6. Hazardous decomposition products

No known hazardous decomposition products.

Further information

No data available

SECTION 11: Toxicological information

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

Toxicokinetics, metabolism and distribution

There are no data available on the mixture itself.

Acute toxicity

Based on available data, the classification criteria are not met.

If swallowed danger of perforation of the esophagus and the stomach
(strong corrosive effects).

Pulmonary oedema

Extremely damaging effect on the tissue of the mucous membranes and
upper respiratory tract, as well as on the eyes and skin.

ATEmix calculated

ATE (oral) > 2000 mg/kg; ATE (dermal) > 2000 mg/kg; ATE (inhalation
vapour) > 20 mg/l; ATE (inhalation dust/mist) > 5 mg/l

Safety Data Sheet

according to Regulation (EC) No
1907/2006

Lithiumhydroxidlösung 4 mol/l zur pH-Wert-Einstellung

Revision date: 27.05.2024

Product code: 33940

Page 10 of 15

CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
1310-66-3	Lithiumhydroxid-Monohydrat				
	oral	LD50 363 mg/kg	Mouse	Spravochnik po Toksikologii i Gigieniche	Only data from review article available.
	dermal	LD50 > 2000 mg/kg	Rat	Study report (1994)	OECD Guideline 402
	inhalation (4 h) dust/mist	LC50 > 6,15 mg/l	Rat	Study report (1999)	EPA OPPTS 870.1300

Irritation and corrosivity

Skin corrosion/irritation: Causes severe skin burns and eye damage.
Serious eye damage/eye irritation: Causes serious eye damage.
Risk of serious damage to eyes.

Sensitising effects

Based on available data, the classification criteria are not met.

Carcinogenic/mutagenic/toxic effects for reproduction

Germ cell mutagenicity: Based on available data, the classification criteria are not met.
Carcinogenicity: Based on available data, the classification criteria are not met.
Reproductive toxicity: Based on available data, the classification criteria are not met.

STOT-single exposure

Based on available data, the classification criteria are not met.

STOT-repeated exposure

Based on available data, the classification criteria are not met.

Aspiration hazard

Based on available data, the classification criteria are not met.
There are no data available on the mixture itself.

Information on likely routes of exposure

There are no data available on the mixture itself.

Specific effects in experiment on an animal

There are no data available on the mixture itself.

Additional information on tests

There are no data available on the mixture itself.

Practical experience

There are no data available on the mixture itself.

11.2. Information on other hazards

Endocrine disrupting properties

There are no data available on the mixture itself.

Safety Data Sheet

according to Regulation (EC) No
1907/2006

Lithiumhydroxidlösung 4 mol/l zur pH-Wert-Einstellung

Revision date: 27.05.2024

Product code: 33940

Page 11 of 15

Other information

There are no data available on the mixture itself.

Further information

Dizziness
Gastrointestinal complaints
Vomiting
Cyanosis (blue coloured blood)
Dyspnoea
May cause damage to organs. (kidneys, thyroid gland, central nervous system)
Extremely damaging effect on the tissue of the mucous membranes and upper respiratory tract, as well as on the eyes and skin.

SECTION 12: Ecological information

12.1. Toxicity

Based on available data, the classification criteria are not met.

CAS No	Chemical name					
	Aquatic toxicity	Dose	[h]	Species	Source	Method
1310-66-3	Lithiumhydroxid-Monohydrat					
	Acute fish toxicity	LC50 109 mg/l	96 h	Danio rerio	Study report (2010)	OECD Guideline 203
	Acute algae toxicity	ErC50 41,62 mg/l	72 h	Pseudokirchnheriella subcapitata	Study report (2010)	OECD Guideline 201
	Fish toxicity	NOEC 17,35 mg/l	34 d	Danio rerio	Study report (2012)	OECD Guideline 210
	Crustacea toxicity	NOEC 4 mg/l	21 d	Daphnia magna	Study report (2010)	OECD Guideline 211
	Acute bacteria toxicity	EC50 180,8 mg/l ()	3 h	activated sludge, domestic	Study report (2004)	EU Method C.11

12.2. Persistence and degradability

The methods for determining the biological degradability are not applicable to inorganic substances.

12.3. Bioaccumulative potential

There are no data available on the mixture itself.

12.4. Mobility in soil

There are no data available on the mixture itself.

12.5. Results of PBT and vPvB assessment

The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, annex XIII.

Safety Data Sheet

according to Regulation (EC) No
1907/2006

Lithiumhydroxidlösung 4 mol/l zur pH-Wert-Einstellung

Revision date: 27.05.2024

Product code: 33940

Page 12 of 15

12.6. Endocrine disrupting properties

This product does not contain a substance that has endocrine disrupting properties with respect to non-target organisms as no components meets the criteria.

12.7. Other adverse effects

There are no data available on the mixture itself.

Further information

Do not allow to enter into surface water or drains.
Discharge into the environment must be avoided.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Disposal recommendations

Waste disposal according to directive 2008/98/EC, covering waste and dangerous waste.

Send to a physico-chemical treatment facility under observation of official regulations.

Do not allow to enter into surface water or drains.

Contaminated packaging

The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process.

Handle contaminated packages in the same way as the substance itself.

SECTION 14: Transport information

Land transport (ADR/RID)

14.1. UN number or ID number:	UN 2679
14.2. UN proper shipping name:	LITHIUM HYDROXIDE SOLUTION
14.3. Transport hazard class(es):	8
14.4. Packing group:	II
Hazard label:	8
Classification code:	C5
Limited quantity:	1 L
Excepted quantity:	E2
Transport category:	2
Hazard No:	80
Tunnel restriction code:	E

Inland waterways transport (ADN)

14.1. UN number or ID number:	UN 2679
14.2. UN proper shipping name:	LITHIUM HYDROXIDE SOLUTION
14.3. Transport hazard class(es):	8

Safety Data Sheet

according to Regulation (EC) No
1907/2006

Lithiumhydroxidlösung 4 mol/l zur pH-Wert-Einstellung

Revision date: 27.05.2024

Product code: 33940

Page 13 of 15

14.4. Packing group: II
Hazard label: 8
Classification code: C5
Limited quantity: 1 L
Excepted quantity: E2

Marine transport (IMDG)

14.1. UN number or ID number: UN 2679
14.2. UN proper shipping name: LITHIUM HYDROXIDE SOLUTION
14.3. Transport hazard class(es): 8
14.4. Packing group: II
Hazard label: 8
Special Provisions: -
Limited quantity: 1 L
Excepted quantity: E2
EmS: F-A, S-B

Air transport (ICAO-TI/IATA-DGR)

14.1. UN number or ID number: UN 2679
14.2. UN proper shipping name: LITHIUM HYDROXIDE SOLUTION
14.3. Transport hazard class(es): 8
14.4. Packing group: II
Hazard label: 8
Special Provisions: A3 A803
Limited quantity: 0.5 L
Passenger:
Passenger LQ: Y840
Excepted quantity: E2
IATA-packing instructions - Passenger: 851
IATA-max. quantity - Passenger: 1 L
IATA-packing instructions - Cargo: 855
IATA-max. quantity - Cargo: 30 L

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: No

14.6. Special precautions for user

Warning: strongly corrosive.

14.7. Maritime transport in bulk according to IMO instruments

not applicable

SECTION 15: Regulatory information

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

EU regulatory information

Safety Data Sheet

according to Regulation (EC) No
1907/2006

Lithiumhydroxidlösung 4 mol/l zur pH-Wert-Einstellung

Revision date: 27.05.2024

Product code: 33940

Page 14 of 15

Restrictions on use (REACH, annex XVII):

Entry 3

Information according
to Directive 2012/18/EU
(SEVESO III):

Not subject to 2012/18/EU (SEVESO III)

National regulatory information

Employment
restrictions:

Observe restrictions to employment for
juveniles according to the 'juvenile work
protection guideline' (94/33/EC). Observe
employment restrictions under the Maternity
Protection Directive (92/85/EEC) for
expectant or nursing mothers.

Water hazard class (D):

1 - slightly hazardous to water

SECTION 16: Other information

Changes

This data sheet contains changes from the previous version in
section(s): 9,12.

Abbreviations and acronyms

Acute Tox: Acute toxicity

Skin Corr: Skin corrosion

Eye Dam: Eye damage

ADR: Accord européen sur le transport des marchandises dangereuses
par Route

(European Agreement concerning the International Carriage of
Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

GHS: Globally Harmonized System of Classification and Labelling of
Chemicals

EINECS: European Inventory of Existing Commercial Chemical
Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service

LC50: Lethal concentration, 50%

LD50: Lethal dose, 50%

**Classification for mixtures and used evaluation method according to
Regulation (EC) No 1272/2008 [CLP]**

Classification	Classification procedure
Skin Corr. 1B; H314	Calculation method
Eye Dam. 1; H318	Calculation method

Relevant H and EUH statements (number and full text)

H302

Harmful if swallowed.

H314

Causes severe skin burns and eye damage.

H318

Causes serious eye damage.

Further Information

The above information describes exclusively the safety requirements
of the product and is based on our present-day knowledge. The
information is intended to give you advice about the safe handling

Safety Data Sheet

according to Regulation (EC) No
1907/2006

Lithiumhydroxidlösung 4 mol/l zur pH-Wert-Einstellung

Revision date: 27.05.2024

Product code: 33940

Page 15 of 15

of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.

Provide appropriate information, instructions and training to users

(The data for the relevant ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)