



SDS

Report No. : A2220504369101001

Company Name JIANGMEN JJJ BATTERY CO., LTD.

shown on Report:

Address: NO.83, YONGSHENG ROAD, BAISHA IND. DEV.
AREA, 529000 JIANGMEN CITY, GUANGDONG
PROVINCE, PEOPLE'S REPUBLIC OF CHINA

Sample Name: Nickel Metal Hydride Battery

Reviewed by:

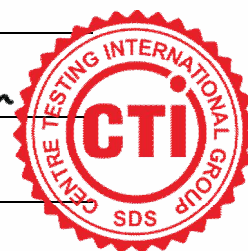
Gou Cuili

Approved by:

Chen Kaimin

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Nov. 17, 2022



No. 2688534659

Nickel Metal Hydride Battery

Version: V2.0.0.1

Report No.: A2220504369101001

Creation Date: 2022/11/17

Revision Date: 2022/11/17

*Prepared according to EU regulation No. 2020/878

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

| Product identifier

Product Name	Nickel Metal Hydride Battery
CAS No.	Not applicable
EC No.	Not applicable
Molecular Formula	Not applicable
REACH Registration Number	-
UFI	No information available

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

Relevant identified uses	Use to supply electrical power.
Uses advised against	None.

| Details of the supplier of the Safety Data Sheet

Name of the company	Jiangmen JJJ Battery Co., Ltd.
Address of the company	No.83, Yongsheng Road, Baisha Ind. Dev. Area, 529000 Jiangmen City, Guangdong Province, PEOPLE'S REPUBLIC OF CHINA
Post code	-
Telephone number	+86-750-3534405
Fax number	-
E-mail address	ISP@jjjbattery.com

| Emergency telephone number

Emergency telephone number	+86-750-3534405
Opening hours	24h

2 Hazards identification

| CLP classification according to Regulation (EC) No. 1272/2008

According to Regulation (EC) No 1272/2008 and its amendments. Not classified as a dangerous substance.

| GHS Label elements

Hazard pictograms	Not applicable
Signal word	Not applicable

| Hazard statements

Hazard statements	Not applicable
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| Precautionary statements

☐ Prevention

Prevention	Not applicable
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☐ Response

Response	Not applicable
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☐ Storage

Storage	Not applicable
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☐ Disposal

Disposal	Not applicable
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| Other hazards

☐ Results of PBT and vPvB assessment

Component	Results of PBT and vPvB assessment [according to (EC) No 1907/2006]
Iron	Not applicable
Nickel dihydroxide	Not applicable
Nickel	Not applicable
Potassium hydroxide	Not available
Polypropylene	Not available
Cobalt oxide	Not applicable
Lithium hydroxide monohydrate	Not available

☐ Results of endocrine disrupting properties assessment

Component	Results of endocrine disrupting properties assessment [according to (EU) No 2017/2100 or (EU) No 2018/605]
Iron	Not available
Nickel dihydroxide	Not available
Nickel	Not available
Potassium hydroxide	Not available
Polypropylene	Not available
Cobalt oxide	Not available
Lithium hydroxide monohydrate	Not available

☐ Other

	Not applicable.
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3 Composition/information on ingredients

| Substance/mixture

		Mixture	
Component	Weight % content (or range)	Classification according to Regulation (EC) No. 1272/2008 [CLP]	Specific Conc. Limits, M-factors
Hydrogen storage alloy powder CAS: - EC: - Index No.: -	≤ 34.40	No information available	-
Iron CAS: 7439-89-6 EC: 231-096-4 Index No.: -	26.60	Not Classified	-
Nickel dihydroxide CAS: 12054-48-7 EC: 235-008-5 Index No.: 028-008-00-X	22.70	Acute Toxicity – Oral, Category 4, H302; Skin Corrosion/Irritation, Category 2, H315; Sensitization – Skin, Category 1, H317; Acute Toxicity – Inhalation, Category 4, H332; Sensitization – Respiratory, Category 1, H334; Germ Cell Mutagenicity, Category 2, H341; Specific Target Organ Toxicity (Repeated Exposure), Category 1, H372; Hazardous To The Aquatic Environment – Short-Term (Acute) Hazard, Category 1, H400; Hazardous To The Aquatic Environment – Long-Term (Chronic) Hazard, Category 1, H410; Carcinogenicity, Category 1, H350; Reproductive Toxicity, Category 1, H360	-
Nickel CAS: 7440-02-0 EC: 231-111-4 Index No.: 028-002-01-4	6.30	Sensitization – Skin, Category 1, H317; Carcinogenicity, Category 2, H351; Specific Target Organ Toxicity (Repeated Exposure), Category 1, H372; Hazardous To The Aquatic Environment – Long-Term (Chronic) Hazard, Category 3, H412	-
Potassium hydroxide CAS: 1310-58-3 EC: 215-181-3 Index No.: 019-002-00-8	4.40	Acute Toxicity – Oral, Category 4, H302; Skin Corrosion/Irritation, Category 1A, H314	H314B:2%≤C<5% H319:0.5%≤C<2% H314A:C≥5% H315:0.5%≤C<2%
Polypropylene CAS: 9003-07-0 EC: 618-352-4 Index No.: -	3.40	Not Classified	-
Cobalt oxide CAS: 1307-96-6 EC: 215-154-6 Index No.: 027-002-00-4	1.80	Acute Toxicity – Oral, Category 4, H302; Sensitization – Skin, Category 1, H317; Hazardous To The Aquatic Environment – Short-Term (Acute) Hazard, Category 1, H400; Hazardous To The Aquatic Environment – Long-Term (Chronic) Hazard, Category 1, H410	M=10

Lithium hydroxide monohydrate CAS: 1310-66-3 EC: 603-454-3 Index No.: -	0.40	Acute Toxicity – Oral, Category 4, H302; Skin Corrosion/Irritation, Category 1B, H314; Eye Damage/Irritation, Category 1, H318	-
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4 First-aid measures

| Description of first aid measures

General advice	Immediate medical attention is required. Show this safety data sheet (SDS) to the doctor in attendance.
Eye contact	Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician if feel uncomfortable.
Skin contact	No harm in general situation. First aid is not needed.
Ingestion	Never give anything by mouth to an unconscious person. Call a physician or Poison Control Center immediately.
Inhalation	Move victim into fresh air. If breathing is difficult, give oxygen and consult a physician immediately.
Protecting of first-aiders	Ensure that medical personnel are aware of the substance involved. Take precautions to protect themselves and prevent spread of contamination.

| Most important symptoms/effects, acute and delayed

1	Please see section 11.
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| Indication of any immediate medical attention and special treatment needed

1	Treat symptomatically.
2	Symptoms may be delayed.

5 Fire-fighting measures

| Extinguishing media

Suitable extinguishing media	Use extinguishing media suitable for surrounding area.
Unsuitable extinguishing media	There is no restriction on the type of extinguisher which may be used.

| Specific hazards arising from the substance or mixture

1	Development of hazardous combustion gases or vapor possible in the event of fire.
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| Advice for firefighters

1	As in any fire, wear self-contained breathing apparatus (MSHA/NIOSH approved or equivalent) and full protective gear.
2	Fight fire from a safe distance, with adequate cover.
3	Prevent fire extinguishing water from contaminating surface water or the ground water system.

6 Accidental release measures

| Personal precautions, protective equipment and emergency procedures

1	Ensure adequate ventilation. Remove all sources of ignition. Take precautionary measures against static
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	discharges.
2	Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.
3	Use personal protective equipment, do not breathe dust/fume.

| Environmental precautions

1	Prevent further leakage or spillage if safe to do so.
2	Discharge into the environment must be avoided.

| Methods and materials for containment and cleaning up

1	Cut off the source of the leak as much as possible.
2	Keep leaks in a ventilated place.
3	Isolation of contaminated areas and restrictions on access.
4	It is recommended that emergency personnel wear dust masks.
5	Collect the spill with a clean shovel and place it in a clean, dry, loosely closed container and move the container away from the leak.
6	Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.

7 Handling and storage

| Precautions for safe handling

u Protective measures

1	Handling is performed in a well ventilated place.
2	Wear suitable protective equipment.
3	Avoid contact with skin and eyes.

u Measures to prevent fire

1	Keep away from heat/sparks/open flames/ hot surfaces.
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u Measures to prevent aerosol and dust generation

1	Avoid formation of dust and aerosols.
2	Provide appropriate exhaust ventilation at places where dust is formed.

u Advice on general occupational hygiene

1	Wash hands and face after using of the substances.
2	Replace the contaminated clothing immediately.

| Conditions for safe storage, including any incompatibilities

1	Keep containers tightly closed.
2	Keep containers in a dry, cool and well-ventilated place.
3	Keep away from heat/sparks/open flames/hot surfaces.
4	Store away from incompatible materials and foodstuff containers.

| Specific end use(s)

1	In addition to use mentioned in the first parts, unforeseen other specific end uses.
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8 Exposure controls/personal protection

| Control parameters

Component	Country/Region	Limit value - Eight hours		Limit value - Short term	
		ppm	mg/m ³	ppm	mg/m ³
Nickel dihydroxide	Spain		0.1		
	France		1		
Nickel	USA - OSHA		1		
	South Korea		1		
	Ireland		0.5		
	Hungary		0.1		0.1
	Denmark		0.05		0.1
	Australia		1		
Potassium hydroxide	USA - NIOSH				2
	South Korea				2
	Poland		0.5		1
	Ireland				2
	Denmark		2		2
	Australia				2
Cobalt oxide	Latvia		0.5		
Lithium hydroxide monohydrate	Canada - Ontario		1		

u Biological limit values

Biological limit values	No relevant regulations
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u Monitoring methods

1	EN 14042 Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents.
2	GBZ/T 300 series standard Determination of toxic substances in workplace air.

u Derived No effect level (DNEL)

Component	Route of exposure	DNEL for Workers			
		Acute effects (local)	Acute effects (systemic)	Chronic effects (local)	Chronic effects (systemic)
Iron	Inhalation	No data available	No data available	3 mg/m ³	No data available
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
Nickel dihydroxide	Inhalation	No data available	No data available	0.05 mg/m ³	0.05 mg/m ³
	Oral	No data available	No data available	No data available	No data available

	Dermal	No data available	No data available	No data available	No data available
Nickel	Inhalation	No data available	No data available	0.05 mg/m ³	0.05 mg/m ³
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
Potassium hydroxide	Inhalation	No data available	No data available	1 mg/m ³	No data available
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
Polypropylene	Inhalation	No data available	No data available	No data available	No data available
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
Cobalt oxide	Inhalation	No data available	No data available	0.0509 mg/m ³	No data available
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available
Lithium hydroxide monohydrate	Inhalation	No data available	No data available	No data available	10 mg/m ³
	Oral	No data available	No data available	No data available	No data available
	Dermal	No data available	No data available	No data available	No data available

u Predicted No Effect Concentration (PNEC)

Predicted No Effect Concentration (PNEC)	No information available
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| Engineering controls

1	Ensure adequate ventilation, especially in confined areas.
2	Ensure that eyewash stations and safety showers are close to the workstation location.
3	Set up emergency exit and necessary risk-elimination area.
4	Handle in accordance with good industrial hygiene and safety practice.

| Personal protection equipment

General requirement	No special requirements, please see the description below.
Eye protection	In general situation, eye protection is not needed. In the production process, when contacting with vapour or dust, tightly fitting safety goggles.
Hand protection	In general situation, hand protection is not needed.
Respiratory protection	In general situation, respiratory protection is not needed. If exposure limits are exceeded or if irritation or other symptoms are experienced, wear dust proof mask or gas defence mask.
Skin and body protection	In general situation, skin and body protection are not needed.

9 Physical and chemical properties and safety characteristics

| Physical and chemical properties

Physical state	Solid
Colour	Colorized
Odor	Odorless
Odor threshold	No information available
pH	No information available
Melting point/freezing point(°C)	No information available
Initial boiling point and boiling range(°C)	No information available
Flash point(Closed cup,°C)	No information available
Evaporation rate	No information available
Flammability	No information available
Upper/lower explosive limits[%(v/v)]	Upper limit: No information available; Lower limit: No information available
Vapor pressure	No information available
Vapor density(Air = 1)	No information available
Relative density(Water=1)	No information available
Solubility	Insoluble in water
n-octanol/water partition coefficient	No information available
Auto-ignition temperature(°C)	No information available
Decomposition temperature(°C)	No information available
Kinematic viscosity(mm²/s)	No information available
Explosive properties	Non explosive
Oxidizing properties	Not oxidizing
Particle characteristics	No information available

10 Stability and reactivity

| Stability and reactivity

Reactivity	Contact with incompatible substances can cause decomposition or other chemical reactions.
Chemical stability	Stable under proper operation and storage conditions.
Possibility of hazardous reactions	No information available.
Conditions to avoid	Incompatible materials, heat, flame and spark.
Incompatible materials	Halogen, interhalogen, strong oxidant and acids. Acids, phenols, alcohols and nitro substituted hydrocarbon.
Hazardous decomposition products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11 Toxicological information

| Acute toxicity

Component	LD ₅₀ (oral)	LD ₅₀ (dermal)	LC ₅₀ (inhalation,4h)
Cobalt oxide	202mg/kg(Rat)	No information available	No information available
Iron	30000mg/kg(Rat)	No information available	No information available
Nickel dihydroxide	1515mg/kg(Rat)	> 2000mg/kg(Rat)	1.2mg/L(Rat)
Potassium hydroxide	273mg/kg(Rat)	No information available	No information available

| Carcinogenicity

Component	List of carcinogens by the IARC Monographs	Report on Carcinogens by NTP
Hydrogen storage alloy powder	Not Listed	Not Listed
Iron	Not Listed	Not Listed
Nickel dihydroxide	Category 1	Category K
Nickel	Category 2B	Category R
Potassium hydroxide	Not Listed	Not Listed
Polypropylene	Category 3	Not Listed
Cobalt oxide	Category 2B	Not Listed
Lithium hydroxide monohydrate	Not Listed	Not Listed

| Endocrine disrupting properties

Component	Endocrine disrupting properties
Iron	Not available
Nickel dihydroxide	Not available
Nickel	Not available
Potassium hydroxide	Not available
Polypropylene	Not available
Cobalt oxide	Not available
Lithium hydroxide monohydrate	Not available

| Others

Nickel Metal Hydride Battery	
Skin corrosion/irritation	Based on available data, the classification criteria are not met
Serious eye damage/irritation	Based on available data, the classification criteria are not met
Skin sensitization	Based on available data, the classification criteria are not met
Respiratory sensitization	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
Germ cell mutagenicity	Based on available data, the classification criteria are not met
Reproductive toxicity(additional)	Based on available data, the classification criteria are not met

12 Ecological information

| Acute aquatic toxicity

Component	Fish	Crustaceans	Algae
Cobalt oxide	LC ₅₀ : 1.5mg/L (96h)(Fish)	No information available	No information available
Nickel	LC ₅₀ : 40mg/L (96h)(Fish)	EC ₅₀ : 1mg/L (48h)(Crustaceans)	No information available
Iron	LC ₅₀ : 1.29mg/L (96h)(Fish)	No information available	No information available
Nickel dihydroxide	LC ₅₀ : 77.13mg/L (96h)(Fish)	No information available	No information available

| Chronic aquatic toxicity

Chronic aquatic toxicity	No information available
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| Persistence and degradability

Component	Persistence (water/soil)	Persistence (air)
Nickel	Low	Low
Polypropylene	Low	Low

| Bioaccumulative potential

Component	Bioaccumulative potential	Comments
Nickel	Low	Log Kow=-1.38
Polypropylene	Low	Log Kow=1.6783

| Mobility in soil

Component	Mobility in soil	Soil Organic Carbon-Water Partitioning Coefficient (Koc)
Nickel	Low	14.3
Polypropylene	Low	23.74

| Results of PBT and vPvB assessment

Component	Results of PBT and vPvB assessment [according to (EC) No 1907/2006]
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Iron	Not applicable
Nickel dihydroxide	Not applicable
Nickel	Not applicable
Potassium hydroxide	Not available
Polypropylene	Not available
Cobalt oxide	Not applicable
Lithium hydroxide monohydrate	Not available

| Endocrine disrupting properties

Component	Endocrine disrupting properties
Iron	Not available
Nickel dihydroxide	Not available
Nickel	Not available
Potassium hydroxide	Not available
Polypropylene	Not available
Cobalt oxide	Not available
Lithium hydroxide monohydrate	Not available


13 Disposal considerations

| Disposal considerations

Waste chemicals	Before disposal should refer to the relevant national and local laws and regulation. Recommend the use of incineration disposal.
Contaminated packaging	Containers may still present chemical hazard when empty. Keep away from hot and ignition source of fire. Return to supplier for recycling if possible.
Disposal recommendations	Refer to section waste chemicals and contaminated packaging.

14 Transport information

| Label

Transporting Label	
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| IMDG-CODE

UN number	3496
UN proper shipping name	BATTERIES, NICKEL-METAL HYDRIDE
Transport hazard class	9

Transport subsidiary hazard class	None
Packing group	Not applicable
Marine pollutant (Yes or no)	No

| ICAO/IATA-DG

UN number	3496
UN proper shipping name	BATTERIES, NICKEL-METAL HYDRIDE
Transport hazard class	9
Transport subsidiary hazard class	None
Packing group	Not applicable

| UN-ADR

UN number	3496
UN proper shipping name	BATTERIES, NICKEL-METAL HYDRIDE
Transport hazard class	9
Transport subsidiary hazard class	None
Packing group	Not subject

15 Regulatory information

| International chemical inventory

Component	EC inventory	TSCA	DSL	IECSC	NZIoC	PICCS	KECI	AIICS	ENCS
Hydrogen storage alloy powder	x	x	x	x	x	x	x	x	x
Iron	√	√	√	√	√	√	√	√	√
Nickel dihydroxide	√	√	√	√	√	√	√	√	√
Nickel	√	√	√	√	√	√	√	√	√
Potassium hydroxide	√	√	√	√	√	√	√	√	√
Polypropylene	x	√	√	√	√	√	√	√	√
Cobalt oxide	√	√	√	√	√	√	√	√	√
Lithium hydroxide monohydrate	x	x	x	√	√	√	x	√	√

[EC inventory]	European Inventory of Existing Commercial Chemical Substances
[TSCA]	United States Toxic Substances Control Act Inventory
[DSL]	Canadian Domestic Substances List
[IECSC]	China Inventory of Existing Chemical Substances
[NZIoC]	New Zealand Inventory of Chemicals
[PICCS]	Philippines Inventory of Chemicals and Chemical Substances
[KECI]	Korea Existing Chemicals Inventory
[AIICS]	Australian. Inventory of Industrial Chemical (AIICS)

| European chemical inventory

Component	A	B	C	D	E	F	G
Hydrogen storage alloy powder	x	x	x	x	x	x	x
Iron	x	x	x	√	√	x	x
Nickel dihydroxide	x	x	√	√	√	x	√
Nickel	x	x	√	√	√	x	√
Potassium hydroxide	x	x	x	√	√	x	x
Polypropylene	x	x	x	√	x	x	x
Cobalt oxide	x	x	x	√	√	x	x
Lithium hydroxide monohydrate	x	x	x	√	x	x	x

[A] Candidate list of Substances of Very High Concern for authorization under EU REACH regulation

[B] Substances requiring authorisation under EU REACH regulation

[C] Substances restricted under EU REACH

[D] Pre-registered substances under EU REACH

[E] Registered substances under EU REACH

[F] Substance Evaluation – CoRAP under EU REACH

[G] List of priority substances under EU water policy (Directive 2455/2001/EC)

Note:

“√” Indicates that the substance included in the regulations.

“x” No data or not included in the regulations.

16 Other information

| Information on revision

Creation Date	2022/11/17
Revision Date	2022/11/17
Reason for revision	-

| Reference

- [1] IPCS: The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>.
- [2] IARC, website: <http://www.iarc.fr/>.
- [3] OECD: The Global Portal to Information on Chemical Substances, website: <https://www.echemportal.org/echemportal/substancesearch/index.action>.
- [4] CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>.
- [5] NLM: ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>.
- [6] EPA: Integrated Risk Information System, website: <http://cfpub.epa.gov/iris/>.
- [7] U.S. Department of Transportation: ERG, website: <http://www.phmsa.dot.gov/hazmat/library/erg>.
- [8] Germany GESTIS-database on hazard substance, website: <http://gestis-en.itrust.de/>.

| Abbreviations and acronyms

CAS Chemical Abstracts Service
 PC-STEL Short term exposure limit

UN The United Nations
 OECD Organization for Economic Co-operation and Development

PC-TWA	Time Weighted Average	IMDG-CODE	International Maritime Dangerous Goods CODE
MAC	Maximum Allowable Concentration	IARC	International Agency for Research on Cancer
DNEL	Derived No Effect Level	ICAO	International Civil Aviation Organization
PNEC	Predicted No Effect Concentration	IATA	International Air Transportation Association
NOEC	No Observed Effect Concentration	ACGIH	American Conference of Governmental Industrial Hygienists
LC ₅₀	Lethal Concentration 50%	NFPA	National Fire Protection Association
LD ₅₀	Lethal Dose 50%	NTP	National Toxicology Program
EC ₅₀	Effective Concentration 50%	PBT	Persistent, Bioaccumulative, Toxic
EC _x	Effective Concentration X%	vPvB	very Persistent, very Bioaccumulative
P _{OW}	Partition coefficient Octanol: Water	CMR	Carcinogens, mutagens or substances toxic to reproduction
BCF	Bioconcentration factor	RPE	Respiratory Protective Equipment
ED	Endocrine disruptor		

| Disclaimer

This Safety Data Sheet (SDS) was prepared according to REACH Regulation. The data included was derived from international authoritative database and provided by the enterprise. Other information was based on the present state of our knowledge. We try to ensure the correctness of all information. However, due to the diversity of information sources and the limitations of our knowledge, this document is only for user's reference. Users should make their independent judgment of suitability of this information for their particular purposes. We do not assume responsibility for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product.

| Further information:

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