Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 01.11.2013 *Revision: 01.11.2013*

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

· **Product identifier**

· **Name of chemical substance: CO2 absorbent**

· **Article number:** 3200053201
· **MSDS No:** 405
· **Relevant identified uses of the substance or mixture and uses advised against**
No further relevant information available.
· **Application of the substance / the preparation** CO2 absorbent

· **Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**
HORIBA, Ltd.
2 Miyanohigashi, Kisshoin,
Minami-ku Kyoto, Japan, KYOTO
601-8510 JAPAN
techinfo.hor@jp.horiba.com

· **Further information obtainable from:** Scientific & Semiconductor Instruments R&D Dept.
· **Emergency telephone number:** During normal opening times: +81 75 313-8121

2 Hazards identification

· **Classification of the substance or mixture**
· **Classification according to Regulation (EC) No 1272/2008**

GHS06 skull and crossbones

Acute Tox. 3	H301	Toxic if swallowed.

GHS08 health hazard

STOT SE 1	H370-H335	Causes damage to organs. May cause respiratory irritation.
STOT RE 1	H372	Causes damage to organs through prolonged or repeated exposure.
Asp. Tox. 1	H304	May be fatal if swallowed and enters airways.

GHS05 corrosion

Skin Corr. 1B	H314	Causes severe skin burns and eye damage.
Eye Dam. 1	H318	Causes serious eye damage.

· **Classification according to Directive 67/548/EEC or Directive 1999/45/EC**
Not applicable.

C; Corrosive

R35: Causes severe burns.
· **Information concerning particular hazards for human and environment:**
The product has to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.

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· ***Classification system:***
The classification is according to the latest editions of the EU-lists, and extended by company and literature data.

· ***Label elements***

· ***Labelling according to EU guidelines:***
The product has been classified and marked in accordance with EU Directives / Ordinance on Hazardous Materials.

· ***Code letter and hazard designation of product:***

C Corrosive

· ***Hazard-determining components of labelling:***
potassium hydroxide

· ***Risk phrases:***
35 Causes severe burns.

· ***Safety phrases:***
1/2 Keep locked up and out of the reach of children.
26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
36/37/39 Wear suitable protective clothing, gloves and eye/face protection.
45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
56 Dispose of this material and its container to hazardous or special waste collection point.

· ***Other hazards***
· ***Results of PBT and vPvB assessment***
· ***PBT:*** *Not applicable.*
· ***vPvB:*** *Not applicable.*

3 Composition/information on ingredients

· ***Chemical characterization: Mixtures***
· ***Description:*** *Mixture of substances listed below with nonhazardous additions.*

· ***Components:***		
CAS: 1344-28-1 *EINECS: 215-691-6*	*aluminium oxide* *STOT RE 1, H372; STOT SE 3, H335*	*90,0%*
CAS: 1310-58-3 *EINECS: 215-181-3* *Index number: 019-002-00-8*	*potassium hydroxide* *C R35; Xn R22* *Acute Tox. 3, H301; STOT SE 1, H370; Asp. Tox. 1, H304; Skin Corr. 1A, H314; Eye Dam. 1, H318*	*9,9%*

· ***Additional information:*** *For the wording of the listed risk phrases refer to section 16.*

4 First aid measures

· ***Description of first aid measures***
· ***General information:*** *Immediately remove any clothing soiled by the product.*

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· ***After inhalation:***
Gargle
Supply fresh air.
· ***After skin contact:*** *Immediately rinse with water.*
· ***After eye contact:*** *Rinse opened eye for several minutes under running water. Then consult a doctor.*
· ***After swallowing:*** *Drink plenty of water and provide fresh air. Call for a doctor immediately.*
· ***Information for doctor:***
· ***Most important symptoms and effects, both acute and delayed*** *No further relevant information available.*
· ***Indication of any immediate medical attention and special treatment needed***
No further relevant information available.

5 Firefighting measures

· ***Extinguishing media***
· ***Suitable extinguishing agents:***
CO2, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
· ***Special hazards arising from the substance or mixture*** *No further relevant information available.*
· ***Advice for firefighters***
· ***Protective equipment:*** *No special measures required.*

6 Accidental release measures

· ***Personal precautions, protective equipment and emergency procedures***
Wear protective equipment. Keep unprotected persons away.
· ***Environmental precautions:*** *Do not allow to enter sewers/ surface or ground water.*
· ***Methods and material for containment and cleaning up:***
Use neutralizing agent.
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
· ***Reference to other sections***
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

· ***Handling:***
· ***Precautions for safe handling***
Thorough dedusting.
Prevent formation of dust.
· ***Information about fire - and explosion protection:*** *No special measures required.*

· ***Conditions for safe storage, including any incompatibilities***
· ***Storage:***
· ***Requirements to be met by storerooms and receptacles:*** *No special requirements.*
· ***Information about storage in one common storage facility:*** *Store away from oxidizing agents.*
· ***Further information about storage conditions:*** *Keep container tightly sealed.*
· ***Storage class:***
· ***Class according to regulation on flammable liquids:*** *Void*

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· ***Specific end use(s)*** *No further relevant information available.*

8 Exposure controls/personal protection

· ***Additional information about design of technical facilities:*** *No further data; see item 7.*

· ***Control parameters***
· ***Ingredients with limit values that require monitoring at the workplace:***
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
· ***Additional information:*** *The lists valid during the making were used as basis.*

· ***Exposure controls***
· ***Personal protective equipment:***
· ***General protective and hygienic measures:***
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing
Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.
· ***Respiratory protection:***
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.
· ***Protection of hands:***

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
· ***Material of gloves***
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
· ***Penetration time of glove material***
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
· ***Eye protection:***

Tightly sealed goggles

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9 Physical and chemical properties

· **Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
Form:	Solid
Colour:	According to product specification
· **Odour:**	Characteristic
· **Odour threshold:**	Not determined.
· **pH-value:**	Not applicable.
· **Change in condition**	
Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	1327 °C
· **Flash point:**	Not applicable.
· **Flammability (solid, gaseous):**	Not determined.
· **Ignition temperature:**	
Decomposition temperature:	Not determined.
· **Self-igniting:**	Product is not selfigniting.
· **Danger of explosion:**	Product does not present an explosion hazard.
· **Explosion limits:**	
Lower:	Not determined.
Upper:	Not determined.
· **Vapour pressure:**	Not applicable.
· **Density:**	Not determined.
· **Relative density**	Not determined.
· **Vapour density**	Not applicable.
· **Evaporation rate**	Not applicable.
· **Solubility in / Miscibility with water:**	Insoluble.
· **Partition coefficient (n-octanol/water):**	Not determined.
· **Viscosity:**	
Dynamic:	Not applicable.
Kinematic:	Not applicable.
· **Solvent content:**	
VOC (EC)	0,00 %
· **Other information**	No further relevant information available.

10 Stability and reactivity

· **Reactivity**
· **Chemical stability**
· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.

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· ***Possibility of hazardous reactions*** *No dangerous reactions known.*
· ***Conditions to avoid*** *No further relevant information available.*
· ***Incompatible materials:*** *No further relevant information available.*
· ***Hazardous decomposition products:*** *No dangerous decomposition products known.*

11 Toxicological information

· ***Information on toxicological effects***
· ***Acute toxicity:***

· ***LD/LC50 values relevant for classification:***		
1310-58-3 potassium hydroxide		
Oral	*LD50*	*273 mg/kg (rat)*

· ***Primary irritant effect:***
· ***on the skin:*** *Strong caustic effect on skin and mucous membranes.*
· ***on the eye:*** *Strong caustic effect.*
· ***Sensitization:*** *No sensitizing effects known.*
· ***Additional toxicological information:***
The product shows the following dangers according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version:
Corrosive
Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

12 Ecological information

· ***Toxicity***
· ***Aquatic toxicity:*** *No further relevant information available.*
· ***Persistence and degradability*** *No further relevant information available.*
· ***Behaviour in environmental systems:***
· ***Bioaccumulative potential*** *No further relevant information available.*
· ***Mobility in soil*** *Not applicable.*
· ***Additional ecological information:***
· ***General notes:***
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
Must not reach sewage water or drainage ditch undiluted or unneutralized.
· ***Results of PBT and vPvB assessment***
· ***PBT:*** *Not applicable.*
· ***vPvB:*** *Not applicable.*
· ***Other adverse effects*** *No further relevant information available.*

13 Disposal considerations

· ***Waste treatment methods***
· ***Recommendation***
Must not be disposed together with household garbage. Do not allow product to reach sewage system.

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· ***Uncleaned packaging:***
· ***Recommendation:*** *Disposal must be made according to official regulations.*

14 Transport information

· ***UN-Number***	
· ***ADR, IMDG, IATA***	*UN1813*
· ***UN proper shipping name***	
· ***ADR***	*1813 POTASSIUM HYDROXIDE, SOLID, mixture*
· ***Transport hazard class(es)***	
· ***ADR, IMDG, IATA***	
· ***Class***	*8 Corrosive substances.*
· ***Label***	*8*
· ***Packing group***	
· ***ADR, IMDG, IATA***	*II*
· ***Environmental hazards:***	
· ***Marine pollutant:***	*No*
· ***Special precautions for user***	*Not applicable.* *Warning: Corrosive substances.*
· ***Danger code (Kemler):***	*80*
· ***EMS Number:***	*F-A,S-B*
· ***Segregation groups***	*Alkalis*
· ***Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code***	*Not applicable.*
· ***Transport/Additional information:***	*Not dangerous according to the above specifications.*
· ***ADR***	
· ***Limited quantities (LQ)***	*1 kg*
· ***Transport category***	*2*
· ***Tunnel restriction code***	*E*
· ***UN "Model Regulation":***	*UN1813, POTASSIUM HYDROXIDE, SOLID, mixture, 8, II*

15 Regulatory information

· ***Safety, health and environmental regulations/legislation specific for the substance or mixture***

· ***National regulations:***

· ***Classification according to VbF:*** *Void*

· ***Waterhazard class:*** *Water hazard class 1 (Self-assessment): slightly hazardous for water.*

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· ***Chemical safety assessment:*** *A Chemical Safety Assessment has not been carried out.*

16 Other information

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· ***Relevant phrases***
H301 Toxic if swallowed.
H304 May be fatal if swallowed and enters airways.
H314 Causes severe skin burns and eye damage.
H318 Causes serious eye damage.
H335 May cause respiratory irritation.
H370 Causes damage to organs.
H372 Causes damage to organs through prolonged or repeated exposure.
R22 Harmful if swallowed.
R35 Causes severe burns.

· ***Department issuing MSDS:*** *Scientific & Semiconductor Instruments R&D Dep.*
· ***Abbreviations and acronyms:***
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 (division of the American Chemical Society)
VbF: Verordnung über brennbare Flüssigkeiten, Österreich (Ordinance on the storage of combustible liquids, Austria)
VOC: Volatile Organic Compounds (USA, EU)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
· **** Data compared to the previous version altered.*** *Revised Nov. 1, 2013*