Potassium hydroxide

Safety Data Sheet

according to Regulation (EU) 2015/830

Date of issue: 01/06/2022

Doc No:SDS-960.083/2

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

1.1. Product identifier

Product form	:	Substance
Substance name	:	Potassium hydroxide
EC index no	:	019-002-00-8
EC no	:	215-181-3
CAS No	:	1310-58-3
Type of product	:	Pure substance,Hygroscopic substance. Preventive measures apply to the substance in dry state only
Formula	:	KOH
Chemical structure	:	

Synonyms	:	caustic potash / caustic potash dry / caustic potash, dry solid, flake, bead or granular / caustic potash, solid / caustic potash,solid / hydrate of potash / hydrate of potassium / hydroxide of potash / hydroxide of potassium / lye (=potassium hydroxide) / potash / potash hydrate / potash lye / potassium hydrate / potassium hydroxide (K(OH)) / potassium hydroxide dry / potassium hydroxide pellets / potassium hydroxide, dry solid, flake, bead or granular / potassium hydroxide, electrolytical, solid / potassium hydroxide, solid / Potassium hydroxide, solid / potassium lye

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

1.2.1. Relevant identified uses

Use of the substance/mixture : Laboratory chemical

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

ISOLAB Laborgeräte GmbH
Am Dillhof 2 - 63863 Eschau / GERMANY
Tel: + 49 93 74 / 978 55-0
Fax: +49 93 74 / 978 55-29
prodsafe@isolab.de

1.4. Emergency telephone number

Country	Organisation/Company	Address	Emergency number	Comment
Germany	Giftnotruf der Charité CBF, Haus VIII (Wirtschaftgebäude), UG	Hindenburgdamm 30 12203 Berlin	+49 (0) 30 19240	

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Corrosive to metals, Category 1,	H290
Acute toxicity (oral), Category 4	H302
Skin corrosion/irritation, Category 1A	H314

Full text of hazard classes and H-statements : see section 16

Adverse physicochemical, human health and environmental effects

Harmful if swallowed. Causes severe skin burns and eye damage.

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP) :

GHS05 GHS07

Signal word (CLP) : Danger

Hazard statements (CLP) : H290 May be corrosive to metals
H302 - Harmful if swallowed
H314 - Causes severe skin burns and eye damage

Precautionary statements (CLP) : P280 - Wear protective gloves, eye protection, face protection, protective clothing
P264 - Wash hands thoroughly after handling
P310 - Immediately call a POISON CENTER or doctor/physician
P304+P340 - IF INHALED: remove victim to fresh air and keep at rest in a position comfortable for breathing
P363 - Wash contaminated clothing before reuse
P301+P312 - IF SWALLOWED: call a POISON CENTER or doctor/physician if you feel unwell
P405 - Store locked up

2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances

Name	Product identifier	%
Potassium hydroxide	(CAS No) 1310-58-3 (EC no) 215-181-3 (EC index no) 019-002-00-8	85 - 90

Full text of H-statements: see section 16

3.2. Mixtures

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : Check the vital functions. Unconscious: maintain adequate airway and respiration. Respiratory arrest: artificial respiration or oxygen. Cardiac arrest: perform resuscitation. Victim conscious with laboured breathing: half-seated. Victim in shock: on his back with legs slightly raised. Vomiting: prevent asphyxia/aspiration pneumonia. Prevent cooling by covering the victim (no warming up). Keep watching the victim. Give psychological aid. Keep the victim calm, avoid physical strain. Depending on the victim's condition: doctor/hospital.

First-aid measures after inhalation : Remove the victim into fresh air. Doctor: administration of corticoid spray. Respiratory problems: consult a doctor/medical service.

First-aid measures after skin contact : Wash immediately with lots of water (15 minutes)/shower. Do not apply (chemical) neutralizing agents. Remove clothing while washing. Do not remove clothing if it sticks to the skin. Cover wounds with sterile bandage. Consult a doctor/medical service. If burned surface > 10%: take victim to hospital.

First-aid measures after eye contact : Rinse immediately with plenty of water for 15 minutes. Cover eyes aseptically. Do not apply neutralizing agents. Take victim to an ophthalmologist.

First-aid measures after ingestion : Rinse mouth with water. Immediately after ingestion: give lots of water to drink. Do not induce vomiting. Do not give activated charcoal. Immediately consult a doctor/medical service. Call Poison Information Centre (www.big.be/antigif.htm). Ingestion of large quantities: immediately to hospital. Take the container/vomit to the doctor/hospital. Do not give chemical antidote.

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

Symptoms/injuries after inhalation : AFTER INHALATION OF DUST: Dry/sore throat. Corrosion of the upper respiratory tract. Respiratory difficulties. FOLLOWING SYMPTOMS MAY APPEAR LATER: Possible oedema of the upper respiratory tract. Possible inflammation of the respiratory tract. Possible laryngeal spasm/oedema. Risk of pneumonia.

Symptoms/injuries after skin contact : Caustic burns/corrosion of the skin. Slow-healing wounds.

Symptoms/injuries after eye contact	:	Corrosion of the eye tissue. Permanent eye damage. Blindness.
Symptoms/injuries after ingestion	:	Abdominal pain. Difficulty in swallowing. Possible esophageal perforation. Irritation of the oral mucous membranes. Burns to the gastric/intestinal mucosa. Blood in vomit. AFTER ABSORPTION OF HIGH QUANTITIES: Change in the haemogramme/blood composition. Disturbances of heart rate. FOLLOWING SYMPTOMS MAY APPEAR LATER: Bleeding of the gastrointestinal tract. Low arterial pressure. Blood in stool. Shock.
Chronic symptoms	:	No effects known.

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

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	:	EXTINGUISHING MEDIA FOR SURROUNDING FIRES: Adapt extinguishing media to the environment.
Unsuitable extinguishing media	:	No unsuitable extinguishing media known.

5.2. Special hazards arising from the substance or mixture

Fire hazard	:	DIRECT FIRE HAZARD. Non combustible. INDIRECT FIRE HAZARD. Reactions involving a fire hazard: see "Reactivity Hazard".
Explosion hazard	:	INDIRECT EXPLOSION HAZARD. Reactions with explosion hazards: see "Reactivity Hazard".
Hazardous decomposition products in case of fire	:	Toxic fumes may be released.

5.3. Advice for firefighters

Firefighting instructions	:	Cool tanks/drums with water spray/remove them into safety. Take account of toxic fire-fighting water. Use water moderately and if possible collect or contain it.
Protection during firefighting	:	Heat/fire exposure: compressed air/oxygen apparatus.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Protective equipment	:	Gloves. Face-shield. Corrosion-proof suit. Dust cloud production: compressed air/oxygen apparatus. See "Material-Handling" to select protective clothing.
Emergency procedures	:	Mark the danger area. Avoid ingress of water in the containers. Prevent dust cloud formation. Wash contaminated clothes. In case of hazardous reactions: keep upwind. In case of reactivity hazard: consider evacuation.
Measures in case of dust release	:	In case of dust production: keep upwind. Dust production: have neighbourhood close doors and windows.

6.1.2. For emergency responders

Protective equipment	:	Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Prevent soil and water pollution. Prevent spreading in sewers.

6.3. Methods and material for containment and cleaning up

For containment	:	Contain released substance, pump into suitable containers. Consult "Material-handling" to select material of containers. Plug the leak, cut off the supply. Dam up the solid spill. Knock down/dilute dust cloud with water spray. Take account of toxic/corrosive precipitation water. Hazardous reaction: measure explosive gas-air mixture. Reaction: dilute combustible gas/vapour with water curtain.
Methods for cleaning up	:	Collect the spill only if it is in a dry state. Wetted substance: cover with dry sand/earth. Scoop solid spill into closing containers. See "Material-handling" for suitable container materials. Carefully collect the spill/leftovers. Take collected spill to manufacturer/competent authority. Small quantities of liquid spill: neutralize with dilute acid solution. Wash away neutralized product with plentiful water. Clean contaminated surfaces with an excess of water. Wash clothing and equipment after handling.
Other information	:	Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Comply with the legal requirements. Remove contaminated clothing immediately. Clean contaminated clothing. Use corrosionproof equipment. Thoroughly clean/dry the installation before use. Do not discharge the waste into the drain. Avoid raising dust. Avoid contact of substance with water. Observe very strict hygiene - avoid contact. Keep container tightly closed. Measure the concentration in the air regularly. Carry operations in the open/under local exhaust/ventilation or with respiratory protection.

Hygiene measures : Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store locked up. Store in a well-ventilated place. Keep cool.

Storage temperature : 20 °C

Heat and ignition sources : KEEP SUBSTANCE AWAY FROM: heat sources.

Information on mixed storage : KEEP SUBSTANCE AWAY FROM: combustible materials. oxidizing agents. (strong) acids. highly flammable materials. metals. organic materials. water/moisture.

Storage area : Store in a dry area. Keep container in a well-ventilated place. Keep locked up. Provide for a tub to collect spills. Unauthorized persons are not admitted. Meet the legal requirements.

Special rules on packaging : SPECIAL REQUIREMENTS: hermetical. watertight. corrosion-proof. dry. clean. correctly labelled. meet the legal requirements. Secure fragile packagings in solid containers.

Packaging materials : SUITABLE MATERIAL: steel. stainless steel. carbon steel. iron. nickel. cardboard. synthetic material. glass. stoneware/porcelain. MATERIAL TO AVOID: lead. aluminium. copper. tin. zinc. bronze. polyethylene.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Potassium hydroxide (1310-58-3)		
Belgium	Short time value (mg/m³)	2 mg/m³ (Potassium (hydroxyde de); Belgium; Short time value)
France	VLE (mg/m³)	2 mg/m³ (Potassium (hydroxyde de); France; Short time value; VL: Valeur non réglementaire indicative)
United Kingdom	WEL STEL (mg/m³)	2 mg/m³ Potassium hydroxide; United Kingdom; Short time value; Workplace exposure limit (EH40/2005)
USA - ACGIH	ACGIH Ceiling (mg/m³)	2 mg/m³ (Potassium hydroxide; USA; Momentary value; TLV - Adopted Value)

8.2. Exposure controls

Appropriate engineering controls:

Ensure good ventilation of the work station.

Personal protective equipment:

Gloves. Face shield. Protective clothing.

Materials for protective clothing:

GIVE EXCELLENT RESISTANCE: butyl rubber. natural rubber. neoprene. nitrile rubber. PVC. viton. GIVE LESS RESISTANCE: No data available. GIVE POOR RESISTANCE: leather. natural fibres. PVA

Hand protection:

Gloves

Eye protection:

Face shield

Skin and body protection:

Corrosion-proof clothing. In case of dust production: head/neck protection

Respiratory protection:

Dust production: dust mask with filter type P3. Self-contained breathing apparatus if conc. in air > 1 vol %

Environmental exposure controls:

Avoid release to the environment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	:	Solid
Appearance	:	Solid in various shapes. Powder.
Molecular mass	:	56.11 g/mol
Colour	:	White to light yellow.
Odour	:	Odourless.
Odour threshold	:	No data available
pH	:	14 (56 g/l, H_2O, 20 °C)
pH solution	:	5.6 %
Relative evaporation rate (butylacetate=1)	:	No data available
Melting point	:	360 °C (680 F)
Freezing point	:	Not applicable
Boiling point	:	1320 °C (2408 F)
Flash point	:	Not applicable
Auto-ignition temperature	:	Not applicable
Decomposition temperature	:	No data available
Flammability (solid, gas)	:	Non flammable
Vapour pressure	:	1.0 hPa (714 °C)
Relative vapour density at 20 °C	:	No data available
Relative density	:	2 (20 °C)
Density	:	2.04 g/cm³ (20 °C)
Solubility	:	Exothermically soluble in water. Soluble in ethanol. Soluble in glycerol. Water: 113 g/100ml
Log Pow	:	No data available
Viscosity, kinematic	:	No data available
Viscosity, dynamic	:	No data available
Explosive properties	:	No data available
Oxidising properties	:	No data available
Explosive limits	:	Not applicable

9.2. Other information

Minimum ignition energy	:	Not applicable
SADT	:	Not applicable
VOC content	:	0 %
Other properties	:	Translucent. Hygroscopic. Substance has basic reaction.

SECTION 10: Stability and reactivity

10.1. Reactivity

Violent exothermic reaction with water (moisture). Reacts on exposure to water (moisture) with combustible materials: risk of spontaneous ignition. Reacts on exposure to water (moisture) with (some) metals: release of highly flammable gases/vapours (hydrogen). Absorbs the atmospheric CO2. Violent to explosive reaction with many compounds e.g.: with organic material, with (some) halogens and with (some) acids: heat release resulting in increased fire or explosion risk.

10.2. Chemical stability

Hygroscopic. Absorbs the atmospheric CO2.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

10.5. Incompatible materials

No additional information available

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Oral: Harmful if swallowed.

Potassium hydroxide (1310-58-3)	
LD50 oral rat	333 mg/kg (Rat; Equivalent or similar to OECD 425; Experimental value)

Skin corrosion/irritation : Causes severe skin burns and eye damage.
pH: 13.5 (0.60 %)

Serious eye damage/irritation : Serious eye damage, category 1, implicit
pH: 13.5 (0.60 %)

Respiratory or skin sensitisation : Not classified

Germ cell mutagenicity : Not classified

Carcinogenicity : Not classified

Reproductive toxicity : Not classified

STOT-single exposure : Not classified

STOT-repeated exposure : Not classified

Aspiration hazard : Not classified

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : Before neutralisation, the product may represent a danger to aquatic organisms.

Ecology - air : Not classified as dangerous for the ozone layer (Regulation (EC) No 1005/2009).

Ecology - water : Ground water pollutant. Harmful to fishes. Highly toxic to plankton. pH shift.

Potassium hydroxide (1310-58-3)	
LC50 fish 2	80 mg/l (LC50; 96 h; Gambusia affinis; Static system; Fresh water)

12.2. Persistence and degradability

Potassium hydroxide (1310-58-3)	
Persistence and degradability	Biodegradability: not applicable.
Biochemical oxygen demand (BOD)	Not applicable
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable

12.3. Bioaccumulative potential

Potassium hydroxide (1310-58-3)	
Bioaccumulative potential	Bioaccumulation: not applicable.

12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.

Product/Packaging disposal recommendations : Remove waste in accordance with local and/or national regulations. Hazardous waste shall not be mixed together with other waste. Different types of hazardous waste shall not be mixed together if this may entail a risk of pollution or create problems for the further management of the waste. Hazardous waste shall be managed responsibly. All entities that store, transport or handle hazardous waste shall take the necessary measures to prevent risks of pollution or damage to people or animals. Should not be landfilled with household waste. Recycle/reuse. Immobilize the toxic or harmful components. Precipitate/make insoluble. Remove to an authorized dump (Class I). Treat using the best available techniques before discharge into drains or the aquatic environment.

Additional information : LWCA (the Netherlands): KGA category 05. Hazardous waste according to Directive 2008/98/EC.

European List of Waste (LoW) code : 06 02 04* - sodium and potassium hydroxide

SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

ADR	IMDG	IATA	ADN	RID
14.1. UN number				
1813	1813	1813	1813	1813
14.2. UN proper shipping name				
POTASSIUM HYDROXIDE, SOLID	POTASSIUM HYDROXIDE, SOLID	Potassium hydroxide, solid	POTASSIUM HYDROXIDE, SOLID	POTASSIUM HYDROXIDE, SOLID
Transport document description				
UN 1813 POTASSIUM HYDROXIDE, SOLID, 8, II, (E)	UN 1813 POTASSIUM HYDROXIDE, SOLID, 8, II	UN 1813 Potassium hydroxide, solid, 8, II	UN 1813 POTASSIUM HYDROXIDE, SOLID, 8, II	UN 1813 POTASSIUM HYDROXIDE, SOLID, 8, II
14.3. Transport hazard class(es)				
8	8	8	8	8
				
14.4. Packing group				
II	II	II	II	II
14.5. Environmental hazards				
Dangerous for the environment : No	Dangerous for the environment : No Marine pollutant : No	Dangerous for the environment : No	Dangerous for the environment : No	Dangerous for the environment : No
No supplementary information available				

14.6. Special precautions for user

- Overland transport

Classification code (ADR) : C6

Limited quantities (ADR) : 1kg

Excepted quantities (ADR) : E2

Packing instructions (ADR) : P002, IBC08

Mixed packing provisions (ADR) : MP10

Portable tank and bulk container instructions (ADR) : T3

Portable tank and bulk container special provisions (ADR) : TP33

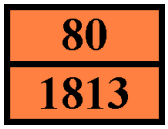
Tank code (ADR) : SGAN

Vehicle for tank carriage : AT

Transport category (ADR) : 2

Special provisions for carriage - Packages (ADR) : V11

Hazard identification number (Kemler No.) : 80

Orange plates	:	
Tunnel restriction code (ADR)	:	E
EAC code	:	2W

- Transport by sea

Transport regulations (IMDG)	:	Subject
Limited quantities (IMDG)	:	1 kg
Excepted quantities (IMDG)	:	E2
Packing instructions (IMDG)	:	P002
IBC packing instructions (IMDG)	:	IBC08
IBC special provisions (IMDG)	:	B2, B4
Tank instructions (IMDG)	:	T3
Tank special provisions (IMDG)	:	TP33
EmS-No. (Fire)	:	F-A
EmS-No. (Spillage)	:	S-B
Stowage category (IMDG)	:	A
Segregation (IMDG)	:	SG35
Properties and observations (IMDG)	:	White pellets, flakes, lumps or solid blocks, deliquescent. Reacts with ammonium salts, evolving ammonia gas. In the presence of moisture, corrosive to aluminium, zinc and tin. Causes burns to skin, eyes and mucous membranes. Reacts violently with acids.
MFAG-No	:	154

- Air transport

Transport regulations (IATA)	:	Subject
PCA Excepted quantities (IATA)	:	E2
PCA Limited quantities (IATA)	:	Y844
PCA limited quantity max net quantity (IATA)	:	5kg
PCA packing instructions (IATA)	:	859
PCA max net quantity (IATA)	:	15kg
CAO packing instructions (IATA)	:	863
CAO max net quantity (IATA)	:	50kg
ERG code (IATA)	:	8L

- Inland waterway transport

Classification code (ADN)	:	C6
Limited quantities (ADN)	:	1 kg
Excepted quantities (ADN)	:	E2
Equipment required (ADN)	:	PP, EP
Number of blue cones/lights (ADN)	:	0

- Rail transport

Transport regulations (RID)	:	Subject
Classification code (RID)	:	C6
Limited quantities (RID)	:	1kg
Excepted quantities (RID)	:	E2
Packing instructions (RID)	:	P002, IBC08
Special packing provisions (RID)	:	B4
Mixed packing provisions (RID)	:	MP10
Portable tank and bulk container instructions (RID)	:	T3
Portable tank and bulk container special provisions (RID)	:	TP33
Tank codes for RID tanks (RID)	:	SGAN
Transport category (RID)	:	2

Special provisions for carriage – Packages (RID)	:	W11
Colis express (express parcels) (RID)	:	CE10
Hazard identification number (RID)	:	80

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

No REACH Annex XVII restrictions

Potassium hydroxide is not on the REACH Candidate List

Potassium hydroxide is not on the REACH Annex XIV List

VOC content	:	0 %

15.1.2. National regulations

Germany

VwVwS Annex reference	:	Water hazard class (WGK) 1, low hazard to waters (Classification according to VwVwS, Annex 1 or 2; ID No. 345)
WGK remark	:	Classification water polluting in compliance with Verwaltungsvorschrift wassergefährdender Stoffe (VwVwS) of 27 July 2005 (Anhang 2)
12th Ordinance Implementing the Federal Immission Control Act - 12.BImSchV	:	Is not subject of the 12. BImSchV (Hazardous Incident Ordinance)

Netherlands

SZW-lijst van kankerverwekkende stoffen	:	The substance is not listed
SZW-lijst van mutagene stoffen	:	The substance is not listed
NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Borstvoeding	:	The substance is not listed
NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Vruchtbaarheid	:	The substance is not listed
NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Ontwikkeling	:	The substance is not listed

Denmark

Recommendations Danish Regulation	:	Young people below the age of 18 years are not allowed to use the product

15.2. Chemical safety assessment

No chemical safety assessment has been carried out

SECTION 16: Other information

Abbreviations and acronyms:

ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute Toxicity Estimate
CLP	Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
EC50	Median effective concentration
BCF	Bioconcentration factor
ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
IMDG	International Maritime Dangerous Goods
IATA	International Air Transport Association
LC50	Median lethal concentration
LD50	Median lethal dose
PBT	Persistent Bioaccumulative Toxic
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet

vPvB	Very Persistent and Very Bioaccumulative

Data sources : REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006.

Full text of H- and EUH-statements:

Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
Skin Corr. 1A	Skin corrosion/irritation, Category 1A
H290	May be corrosive to metals
H302	Harmful if swallowed
H314	Causes severe skin burns and eye damage

SDS ISOLAB

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product