

# Safety Data Sheet

according to Regulations 1907/2006/EC (REACH) and 2015/830/EU

REF: 985043	NANOCOLOR Hardness 20	Page: 1/10
Printing date: 12.01.2023	Date of issue: 15.06.2022	Version: 2.2.2.4

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

### 1.1 Product identifier

REF 985043  
 Product name NANOCOLOR Hardness 20

REACH Registration number(s): see SECTION 3.1/3.2 or  
 A registration number for the substance(s) does not exist because the annual tonnage does not require registration or the substance or its use is excluded from registration.  
 20 x 6 mL Hardness 20 (R0) UFI: Y15U-7301-A20C-M0QG  
 1 x 20x 5 mg NANOFIX Hardness 20 (R2)  
 1 x 5 mL Hardness 20 (R3)

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

**Relevant identified uses**  
 Product for analytical use.  
 Exposure Scenario Classification according REACH, RIP 3.2 Codes: SU 0-2, PC 21, PROC 15, AC 0  
 The exposure scenario is integrated into sections 1-16.  
**Uses advised against**  
 not described

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

**Manufactured by:**  
 MACHEREY-NAGEL GmbH & Co. KG  
 Valenciennes Str. 11, 52355 Düren, Germany  
 Phone: +49 2421 969 0 E-mail: sds@mn-net.com (msds@mn-net.com)

### 1.4 Emergency telephone number

Outside Germany (DE): Call your regional Poisons Information Service or call local Life Saving Service.  
 DE: Gemeinsames Giftinformationszentrum (GGIZ)  
 99089 Erfurt tel. +49 361 730 730, <<https://www.ggiz-erfurt.de>>  
 You find our current versions of SDS in Internet: <<http://www.mn-net.com/SDS>>

Lieferant / Supplier:  
 Carl Roth GmbH + Co KG  
 Schöpperlenstr. 3-5  
 76185 Karlsruhe, Germany  
 +49 721 5606 0  
 sicherheit@carlroth.de

## SECTION 2: Hazard identification

### 2.0 Classification of the complete product according to Regulation (EC) 1272/2008



GHS08

Signal word	DANGER
<b>Hazard identification</b>	<b>Hazard classes/categories</b>
H360FD	Repr. 1B

### 2.1 Classification of the substance or mixture according to Regulation (EC) 1272/2008

6 mL Hardness 20 (R0)



GHS08



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Signal word	DANGER
<b>Hazard identification</b>	<b>Hazard classes/categories</b>
H360FD	Repr. 1B

**20x 5 mg NANOFIX Hardness 20 (R2)**

Signal word	Do not need labelling as hazardous
No hazard class	-

**5 mL Hardness 20 (R3)**

Signal word	Do not need labelling as hazardous
No hazard class	-

List of H phrases: see section 16.2

**2.2 Label elements according regulation (EC) 1272/2008**

According CLP directive inner packages must be only labelled with GHS symbol(s) and product identifier(s) (EU 1272/2008 Annex I - 1.5.1.2). Inner packages up to 10 mL need max. 2 symbols (Annex I - 1.5.2.4.1 / 2).

**6 mL Hardness 20 (R0)**



GHS08

Signal word: DANGER  
 H360FD  
 May damage fertility. May damage the unborn child.  
 P201, P280sh, P308+313, P405  
 Obtain special instructions before use. Wear protective gloves/eye protection. IF exposed or concerned: Get medical advice/attention. Store locked up.

**20x 5 mg NANOFIX Hardness 20 (R2)**

Do not need labelling as hazardous  
 Signal word: -

**5 mL Hardness 20 (R3)**

Do not need labelling as hazardous  
 Signal word: -

**Label elements of the complete product**



GHS08

Signal word: DANGER  
 H360FD  
 May damage fertility. May damage the unborn child.  
 P201, P280sh, P308+313, P405  
 Obtain special instructions before use. Wear protective gloves/eye protection. IF exposed or concerned: Get medical advice/attention. Store locked up.

**2.3 Other hazards**



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## Possible hazards from physicochemical properties

### Information pertaining to particular risks to human and possible symptoms

May damage fertility. May damage the unborn child.

### Information pertaining to particular risks to the environment

PBT: not applicable

vPvB: not applicable

### Possible endocrine disrupting effects

no data available

## SECTION 3: Composition / information on ingredients

### 3.1 Substances or 3.2 Mixtures

#### 6 mL Hardness 20 (R0)

Substance name:	<i>sodium tetraborate</i>		
CAS No.:	12267-73-1		
Substance rating:	H319, Eye Irrit. 2, H360FD, Repr. 1B		
Formula:	Na <sub>2</sub> B <sub>4</sub> O <sub>7</sub>		
Pseudonym (de):	Borax, Dinatriumtetraborat		
REACH Reg. No.:	01-2119490790-32-xxxx		
<b>SVHC listed:</b>	<b>listed (18/06/2010) Cand. Lst. REACH Art59(10)</b>		
EC No.:	215-540-4	Indice No.:	005-011-00-4
Concentration:	1 - <4,5 %		
acc. CLP (GHS):	H360FD, Repr. 1B		

Substance name:	<i>boric acid</i>		
CAS No.:	10043-35-3		
Substance rating:	H360FD, Repr. 1B		
Formula:	H <sub>3</sub> BO <sub>3</sub>		
Pseudonym (de):	Orthoborsäure, E284		
REACH Reg. No.:	01-2119486683-25-0024		
<b>SVHC listed:</b>	<b>listed (18/06/2010) Cand. Lst. REACH Art59(10)</b>		
EC No.:	233-139-2	Indice No.:	005-007-00-2
Concentration:	0,5 - <5,5 %		
acc. CLP (GHS):	H360FD, Repr. 1B		

### 3.3 Remarks

When not listed, mixtures are added with water [CAS No. 7732-18-5] to 100%. List of H and P phrases: see section 16.2.

## SECTION 4: First aid measures

### 4.1 Description of first aid measures

Place insured person out of danger zone to fresh air immediately. Ensure quiet, warmth, and provide resuscitation if necessary. If necessary contact medical advice.

- 4.1.1 After SKIN Contact**  
Remove contaminated clothing. Rinse the affected skin or mucous membrane thoroughly under running water. (If possible) use soap.
- 4.1.2 After EYE Contact**  
After contact with the eyes rinse thoroughly under running water with the eyelid wide open with eye washing bottle, eye douche or running water (protect intact eye).
- 4.1.3 After INHALATION of vapours**  
After inhalation of foam or vapour fresh air should be inhaled. Keep airways free. ---
- 4.1.4 After ORAL Intake**  
After oral intake lots of water should be drunk after it has been ingested.

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



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CMR Effekte:

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

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## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

#### 5.1.1 Suitable extinguishing media

Fire extinguishers appropriate to the fire classification, and, if applicable, a fire blanket must be available in a prominent location in the work area. All extinguishers like FOAM, WATER SPRAY, DRY POWDER, CARBON DIOXIDE can be used.

#### 5.1.2 Unsuitable extinguishing media

no data available

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

Formation of hazardous and caustic vapour-air mixtures possible.

### 5.3 Advice for firefighters

Product package burns like paper or plastic.

### 5.4 Additional information

## SECTION 6: Accidental release measures

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

Do not breathe vapours. Wear suitable protective gloves (see 8.2.2). Regular staff training is necessary, indicating hazards and precautions on the basis of operating instructions. Restrictions on activity must be observed.

### 6.2 Environmental precautions

PBT: not applicable

vPvB: not applicable

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

Bind any escaping liquid with inert absorbent. And dispose in accordance to local regulations for the disposal of hazardous chemicals. Clean any contaminated equipment and floors with plenty of water. Collect small amounts of leaked liquid and flush with water into drains.

### 6.4 Reference to other sections

## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

Handling in accordance with the test instruction, that comes with the product. Use a safety bottle when shaking test tubes.

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

Safe storage is guaranteed in the original packaging. Products which are also classified as toxic must be kept under lock and key. Storage class (German chemical industry): see chapter 12.1

Storage class (VCI): 6.1D

Water hazard class (DE): 2

#### 7.2.1 Requirements for stock rooms and containers

Keep original product packages tightly closed during handling and storage, so that they are not immediately accessible to outside parties.

### 7.3 Specific end use(s)

Product for analytical use.



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## SECTION 8: Exposure controls /personal protection

### 8.1 Control parameters

#### 6 mL Hardness 20 (R0)

Chemical: *sodium tetraborate* CAS No.: 12267-73-1

TRGS 900 (DE): [B] 0.5 mg/m<sup>3</sup>  
E/e respirable

Short-term exposure factor: 2 (I), Y  
skin resorptive (H), respiratory sensitizable (Sa), skin sensitizable (Sh), teratogenic (Z) not securely excluded / (Y) certainly excluded

SUVA(CH) MAK value: [als B][MAK] 0,8e\*/[STEL] 0,8e\* mg/m<sup>3</sup>

NIOSH: not listed ppm  
[TWA] Time-weighted average to a reference period of 8 hours, [STEL] Short-term exposure limit related to a 15-minute period

OSHA: not listed ppm

#### Chemical: *boric acid* CAS No.: 10043-35-3

DNEL: [derm] 392 mg/kg bw/day; [inh] 8.3 mg/m<sup>3</sup>  
DNEL = Derived No-Effect Level (for workers)

PNEC (fresh water): 2.9 mg/L  
PNEC = Predicted No Effect Concentration

TRGS 900 (DE): 0.5 E mg/m<sup>3</sup>  
E/e respirable

Short-term exposure factor: 2 (I), Y  
skin resorptive (H), respiratory sensitizable (Sa), skin sensitizable (Sh), teratogenic (Z) not securely excluded / (Y) certainly excluded

SUVA(CH) MAK value: [Bor][MAK] 1,8e/[STEL] 1,8e mg/m<sup>3</sup>

NIOSH: not listed  
[TWA] Time-weighted average to a reference period of 8 hours, [STEL] Short-term exposure limit related to a 15-minute period

OSHA: not listed

### 8.2 Exposure controls

Good ventilation and extraction system in the room, floor resistant to chemicals with floor drainage and washing facilities. The highest level of cleanliness must be maintained at the workplace.

#### 8.2.1 Respiratory protection

No additional recommendations.

#### 8.2.2 Skin protection / Hand protection

Yes, gloves according EN 374 (permeation time >30 min - level 2), consist of PVC, natural latex, Neopren, or Nitril (f.ex. from Ansell or KCL). Use for short times chemical resistant latex gloves with code EN 374-3 level 1.

#### 8.2.3 Eye / Face Protection

Yes, safety glasses according EN 166 with integrated side shields or wrap-around protection.

#### 8.2.4 Skin protection

Recommended to avoid contamination with these hazards.

#### 8.2.5 Personal hygiene

Eating, drinking, smoking, taking snuff and storage of food in work areas and at outdoor workplaces is prohibited. Avoid contact with the skin, eyes and clothing. Rinse any clothing on which the substance has been spilled, and soak it in water. Wash hands thoroughly with soap and water when stopping work and before eating, and then apply protective skin cream.

#### 8.2.6 Thermal hazards

no data available

### 8.3 Limitation and monitoring of environmental exposure

Do not release product into environment.

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

#### 6 mL Hardness 20 (R0)

a) State of aggregation:	liquid
b) Colour:	colourless
c) Odor:	odorless
d) Melting point:	no data available
e) Boiling point:	no data available
f) Flammability:	no data available
g) Explosive limits (lower / upper):	no data available
h) Flash point:	no data available
i) Flashing temperature:	no data available
j) Decomposition temperature:	no data available



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k) pH value:	9,5-10,5
l) Kinematic viscosity:	no data available
m) Solubility in water:	no data available
n) Dispersion coefficient (o/w) :	no data available
o) Vapour pressure (20°C):	no data available
p) Specific gravity:	1,03 g/cm³
q) Relative vapour density (air=1) :	no data available
r) Particle size:	no data available

## 9.2 Other information

No data is available for the other parameters for the mixtures, since no registration and no chemical safety report is required.  
**Properties relevant to substance groups**

## SECTION 10: Stability and reactivity

### 10.1 Reactivity

no further data available.

### 10.2 Chemical stability

no known instability.

### 10.3 Possibility of hazardous reactions

No further data available.

### 10.4 Conditions to avoid

Observe the storage temperature printed on it. No more required.

### 10.5 Incompatible materials

no additional data available

### 10.6 Hazardous decomposition products

In the original package all parts/all reagents are safety and separated stored. Decompositions are not observed during the expiration period under recommended conditions.

## SECTION 11: Toxicological information

### 11.1 Information on the hazard classes according regulation (EC) 1272/2008

Following information is valid for pure substances. Quantitative data on the toxicity of this product are not available.

#### 6 mL Hardness 20 (R0)

Chemical:	<i>sodium tetraborate</i>	CAS No.: 12267-73-1
TSCA Inventory:	not listed	California Proposition 65 List: not listed
Australia NICNAS:	not listed	Canada CEPA 1999: not listed
Japan CSCL/PRTR:	PRTR: ≥1,0%B class I, Japan PDSCL: not listed	
Japan ISHL:	not listed	
South Korea TCCA:	not listed	
Korea Exist.Chem.Inventory:	KE-33255	
LD50 orl rat :	2660 mg/kg	

Carcinogenic Effects: May damage fertility. May damage the unborn child.  
 EU carcinogen: R D 1B, R F 1B

Chemical:	<i>boric acid</i>	CAS No.: 10043-35-3
TSCA Inventory:	listed	California Proposition 65 List: not listed
Australia NICNAS:	not listed	Canada CEPA 1999: DSL yes
Japan CSCL/PRTR:	PRTR: ≥1,0%B class I, Japan PDSCL: not listed	
Japan ISHL:	not listed	
South Korea TCCA:	not listed	
Korea Exist.Chem.Inventory:	KE-03499	
LD50 orl rat :	> 3765 mg/kg	
LC50 ihl rat :	2,12 mg/L/4H	

Carcinogenic Effects: May damage fertility. May damage the unborn child.



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EU carcinogen: R<sub>D</sub> 1B, R<sub>F</sub> 1B  
TRGS 905 (DE): R<sub>E</sub> 2, R<sub>F</sub> 2

## 11.2 Other hazards

### Possible endocrine disrupting effects

no data available

### Other information

no additional data available

## SECTION 12: Ecological information

### 12.1 Toxicity

Following information is valid for pure substances.

#### 6 mL Hardness 20 (R0)

Chemical: *sodium tetraborate*  
LC50 fish/96h : 74 mg/L  
EC50 daphnia/48h : 242 24h mg/L  
IC50 scenedesmus quadricauda/72h : EC10/96h: 24 mg/L  
Water hazard class (DE): 1 WGK No.: 0037  
Storage class (VCI): 6.1 D

CAS No.: 12267-73-1

#### Chemical: *boric acid*

PNEC (fresh water) : 2.9 mg/L  
PNEC = Predicted No Effect Concentration  
LC50 fish/96h : [4d] 79.7 mg/L  
EC50 daphnia/48h : 91-165 mg/L  
IC50 scenedesmus quadricauda/72h : [72h] 52.4 mg/L  
EC10 pseudomonas putida/16h : [EC10] 10 mg/L  
Water hazard class (DE): 1 WGK No.: 0315  
Dispersion coefficient (o/w) : -1,09  
Storage class (VCI): 6.1 D

CAS No.: 10043-35-3

### 12.2 Persistence and degradability

not necessary

### 12.3 Bioaccumulative potential

not necessary

### 12.4 Mobility in soil

not necessary

### 12.5 Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT) or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher

### 12.6 Endocrine disrupting properties

no data available

### 12.7 Other adverse effects

no additional data available

## SECTION 13: Disposal considerations

Please observe local regulations for collection and disposal of hazardous waste and contact waste disposal company, where you will obtain information on laboratory waste disposal (waste code number 16 05 06). Close container tightly.

### 13.1 Waste treatment methods

Not necessary, see above.



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## SECTION 14: Transport information

14.1 - 14.4 Not necessary

### 14.5 Environmental hazards

none, contains only small quantities of hazardous substances

### 14.6 Special precautions for user

not necessary

### 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

Chemicals Prohibition Ordinance - (DE: ChemVerbotsV), aktualisiert Jan 2017  
 Dangerous Substances Protection Act (DE: Chemikaliengesetz - ChemG), Aug 2013, Stand: Okt 2020  
 Ordinance on protection against dangerous substances (E: Gefahrstoffverordnung - GefStoffV), Nov 2010, Stand: Mrz 2017  
 TRGS 201, Classification and labeling of activities involving hazardous substances, Feb 2017  
 TRGS 220, National aspects when preparing safety data sheets, Jan 2017  
 TRGS 400, Risk assessment for activities involving hazardous substances, Jul 2017  
 BekGS 408, Application of the GefStoffV and the TRGS with the entry into force of the CLP regulation, December 2009, status: Jan 2012  
 Wasserhaushaltsgesetz - WHG, Section 3 Handling substances hazardous to water, Jul 2009, status: Aug 2016  
 MN leaflet/instructions for use, also at [www.mn-net.com](http://www.mn-net.com)  
 If necessary, observe other country-specific regulations.

### 15.2 Chemical safety assessment

not necessary for these small amounts

## SECTION 16: Other information

### 16.1 Changes compared to the last version

Between versions 2.2.2.4 and 2.2.2.2 following changes were applied: - 2 substance data corrected

### 16.2 List of H and P phrases

#### 16.2.1 List of relevant H phrases

H360FD May damage fertility. May damage the unborn child.

#### 16.2.2 List of relevant P phrases

P201 Obtain special instructions before use.  
 P280sh Wear protective gloves/eye protection.  
 P308+313 IF exposed or concerned: Get medical advice/attention.  
 P405 Store locked up.

### 16.3 Recommended restriction on use

Only for professional user.  
 Look about employee restrictions for young people (f. ex. 94/33/EC or DE § 22 JArbSchG)!  
 Look about employee restrictions for pregnant women and nursing women (f.ex. 92/85/EEC or for DE §§ 11-13 MuSchG 2017)!  
 An individual package of this product or test kit has a moderate hazardous potential.

### 16.4 Sources of key data

KÜHN, BIRETT, Leaflets on hazardous materials, 2021  
 Directive 1999/92/EG Minimum requirements to improve the safety and health protection of workers at risk from potentially explosive atmospheres  
 Directive 2004/37/EC on the protection of workers from the risk of carcinogens or mutagens at workSUVA .CH, limit values in the air at work 2009, revised on 01/2009  
 Regulation 790/2009/EU, adaptation of Regulation 1272/2008/EU to technical and scientific progress (1st ATP)  
 Regulation 453/2010/EU, adaptation of the REACH regulation 1907/2006/EG  
 Regulation 487/2013/EU, adaptation of regulation 1272/2008/EG to technical and scientific progress (4th ATP)  
 Regulation 1221/2015/EU, adaptation of regulation 1272/2008/EG to technical and scientific progress (7th ATP)  
 Regulation 776/2017/EU, adaptation of regulation 1272/2008/EG to technical and scientific progress (10th ATP)  
 TRGS 905, German rules of technology for carcinogenic and mutagenic substances, as of March 18, 2016  
 Regulation 669/2018/EU, adaptation of Regulation 1272/2008/EC to technical and scientific progressText (11th ATP)  
 Regulation 1480/2018/EU, adaptation of regulation 1272/2008/EG to technical and scientific progress (13th ATP)  
 Regulation 521/2019/EU, adaptation of regulation 1272/2008/EG to technical and scientific progress (12th ATP)



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TRGS 900, German rules of technology on limit values in the air at work, as of 03/2019  
 Regulation 217/2020/EU, adaptation of Annex VI, Part 3, of Regulation 1272/2008/EC to technical and scientific progress (14th ATP)  
 Regulation 878/2020/EU, adaptation of Annex II of the REACH regulation 1907/2006/EG  
 Regulation 1182/2020/EU, adaptation of Annex VI, Part 3, of Regulation 1272/2008/EC to technical and scientific progress (15th ATP)  
 Regulation 643/2021/EU, adaptation of Annex VI, Part 1, of Regulation 1272/2008/EC to technical and scientific progress (16th ATP)  
 Regulation 849/2021/EU, adaptation of Annex VI, Part 3, of Regulation 1272/2008/EC to technical and scientific progress (17th ATP)

**revisions/updates**

*Reason for revision:* 2014-02 Corrected structure of the sections according to Regulation 453/2010/EU, if necessary  
 2014-04 adjustment according Regulation 487/2013/EU  
 2016-03 adjustment according Regulation 1221/2015/EU  
  
 2017-11 adjustment according the ECHA registration dossier  
 2022-11 adjustment according Regulation 878/2020/EU

**16.5 Further information**

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**16.6 Legend / Abbreviations**

- acc: according
- ADR: Convention concerning the International Carriage of Dangerous Goods by Road
- Act: acute
- BAT: biological workplace tolerance value
- CAO: Cargo Aircraft Only
- Carc: carcinogen
- CAS: Chemical Abstracts Service
- CLP: Classification, Labelling and Packaging regulation
- CMR: carcinogen, mutagen, reproduction toxic
- Corr: corrosive
- COD: chemical oxygen demand
- CSCL: Chemical Substance Control Law (Jp)
- Dam: damage
- DNEL: Derived No-Effect Level (for workers)
- derm: dermal
- dog: dog
- EC10: Concentration causing a toxic effect in 10% of the test organisms
- EC: European Community
- EC-Nr: Substance number of the EC substance inventory
- EmS: Guide to accident management measures on ships
- EU: European Union
- fish: fish (not specified)
- GHS: Global Harmonized System of Classification and Labeling of Chemicals
- gpg: guinea pig
- ICAO: International Civil Aviation Organization
- ihl: inhaled
- IMDG: International Maritime Dangerous Goods Code
- intrav: intravenous
- ipt: intraperitoneal
- ISHL: Industrial Safety and Health Law (Jp)
- LC50: letale concentration 50%
- LD50: letale dosis 50%
- leuciscus idus: fisch, ide, orfe
- MAK: maximum workplace concentration
- Met: Metall
- mus: mouse
- Muta: mutagen
- NIOSH: National Institute for Occupational Safety and Health (US)
- NRD: Non-rapidly degradable
- onchorhynchus mykiss: fisch, rainbow trout
- orl: oral
- OSHA: Occupational Safety and Health Administration



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# Safety Data Sheet

according to Regulations 1907/2006/EC (REACH) and 2015/830/EU

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- PAX: transport on passenger planes allowed
- PBT: persistent, bioaccumulating, toxic substance
- pH: pH value
- pimephales promelas: fish, fathead minnow
- PNEC: Predicted No Effect Concentration
- PROC 15: Process category 'for laboratory use'
- PRTR: Law for PRTR and Promotion of Chemical Management (Jp)
- PVC: polyvinyl chloride
- quail: bird, quail
- rat: rat
- rbt: rabbit
- RD: rapidly degradable
- RE: repeated
- REACH: Registration, Evaluation, Authorisation and Restriction of Chemicals
- REF: item number, reference number
- Reg.No.: rRegistration number
- Repr: harmful to reproduction
- Resp: respiratory
- RIP: REACH Implementations Projects
- scu: sub cutan
- SDS: safety data sheet
- Sens: sensitisation
- STEL: short term exposure limit
- STOT: Specific Target Organ Toxicity
- SVHC: Substance of Very High Concern
- t/a: tons per year
- TCCA: Toxic Chemicals Control Act (S. Korea)
- Tox: toxic
- TSCA: The Toxic Substances Control Act (US)
- TWA: time weighted average
- TRGS: technical regulations (DE)
- vPvB: very persistent, very bioaccumulating substance

## 16.7 Training advice

Regular safety training. Multiple safety training of staffs about danger and protection by using hazards in working area. Additionally training and introduction of staffs for using these products.



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