Iodide-iodate solution 0,05 mol I_2/l - 0,1 N, volumetric standard solution

article number: **0228** Version: **3.0 en** Replaces version of: 2020-01-08 Version: (2)

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

1.1 Product identifier

Identification of the substance

Article number

Iodide-iodate solution 0,05 mol $I_2/I - 0,1$ N, volumetric standard solution

0228

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

Relevant identified uses:

Uses advised against:

Laboratory and analytical use Laboratory chemical

Do not use for products which come into contact with foodstuffs. Do not use for private purposes (household).

1.3 Details of the supplier of the safety data sheet

Carl Roth GmbH + Co KG Schoemperlenstr. 3-5 D-76185 Karlsruhe Germany

Telephone:+49 (0) 721 - 56 06 0 **Telefax:** +49 (0) 721 - 56 06 149 **e-mail:** sicherheit@carlroth.de **Website:** www.carlroth.de

Competent person responsible for the safety data :Department Health, Safety and Environment sheet:

e-mail (competent person):

sicherheit@carlroth.de

1.4 Emergency telephone number

Name	Street	Postal code/city	Telephone	Website
Poisons Information Service City Hospital	Dudley Rd	B187QH Birmingham	844 892 0111	

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification acc. to GHS

Section	Hazard class	Cat- egory	Hazard class and category	Hazard statement
3.9	Specific target organ toxicity - repeated exposure	2	STOT RE 2	H373

For full text of abbreviations: see SECTION 16

The most important adverse physicochemical, human health and environmental effects

Delayed or immediate effects can be expected after short or long-term exposure.



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acc. to Regulation (EC) No. 1907/2006 (REACH)



Iodide-iodate solution 0,05 mol I_2/I - 0,1 N, volumetric standard solution

artic	e number: 0228							
2.2	Label elements							
	Labelling							
	Signal word	Warning						
	Pictograms							
	GHS08							
	Hazard stateme	ents						
	H373	May cause damage to organs (thyroid gland) th posure (if swallowed)	nrough prolonged or repeated ex-					
	Precautionary st	tatements						
	Precautionary st	Precautionary statements - prevention						
	P260	Do not breathe dust/fume/gas/mist/vapours/sp	ray					
	Precautionary st	Precautionary statements - response						
	P314	Get medical advice/attention if you feel unwell						
	Hazardous ingre	edients for labelling: Potassium iodide	e					
2.3	Other hazards							
	Results of PBT a	nd vPvB assessment						
		a not contain any substances that are accessed to h						

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

SECTION 3: Composition/information on ingredients

3.1 Substances

not relevant (mixture)

3.2 Mixtures

Description of the mixture

Name of sub- stance	Identifier	Wt%	Classification acc. to GHS	Pictograms	Notes
Potassium iodide	CAS No 7681-11-0 EC No 231-659-4	2,5 - 5	STOT RE 1 / H372		
Potassium iodate	CAS No 7758-05-6 EC No 231-831-9	≤ 1	Ox. Sol. 2 / H272 Eye Dam. 1 / H318		

For full text of abbreviations: see SECTION 16

acc. to Regulation (EC) No. 1907/2006 (REACH)



Iodide-iodate solution 0,05 mol I_2/I - 0,1 N, volumetric standard solution

article number: 0228

SECTION 4: First aid measures

4.1 Description of first aid measures



General notes

Take off contaminated clothing.

Following inhalation

Provide fresh air. In all cases of doubt, or when symptoms persist, seek medical advice.

Following skin contact

Rinse skin with water/shower.

Following eye contact

Rinse cautiously with water for several minutes.

Following ingestion

Rinse mouth. Call a doctor if you feel unwell.

4.2 Most important symptoms and effects, both acute and delayed Symptoms and effects are not known to date.

4.3 Indication of any immediate medical attention and special treatment needed none

SECTION 5: Firefighting measures

5.1 Extinguishing media



Suitable extinguishing media

co-ordinate firefighting measures to the fire surroundings water spray, alcohol resistant foam, dry extinguishing powder, BC-powder, carbon dioxide (CO₂)

Unsuitable extinguishing media

water jet

5.2 Special hazards arising from the substance or mixture

Non-combustible.

5.3 Advice for firefighters

In case of fire and/or explosion do not breathe fumes. Fight fire with normal precautions from a reasonable distance. Wear self-contained breathing apparatus.

acc. to Regulation (EC) No. 1907/2006 (REACH)

Iodide-iodate solution 0,05 mol I_2/l - 0,1 N, volumetric standard solution

article number: 0228

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures



For non-emergency personnel

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

6.2 Environmental precautions

Keep away from drains, surface and ground water.

6.3 Methods and material for containment and cleaning up

Advice on how to contain a spill

Covering of drains.

Advice on how to clean up a spill

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

Other information relating to spills and releases

Place in appropriate containers for disposal.

6.4 Reference to other sections

Hazardous combustion products: see section 5. Personal protective equipment: see section 8. Incompatible materials: see section 10. Disposal considerations: see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

No special measures are necessary.

Advice on general occupational hygiene

Wash hands before breaks and after work. Keep away from food, drink and animal feedingstuffs.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed.

Incompatible substances or mixtures

Observe hints for combined storage.

Protect against external exposure, such as

direct light irradiation, UV-radiation/sunlight

Consideration of other advice:

Specific designs for storage rooms or vessels

Recommended storage temperature: 15 - 25 °C

7.3 Specific end use(s)

No information available.



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Iodide-iodate solution 0,05 mol $I_2/I - 0,1 N$, volumetric standard solution

article number: 0228

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

National limit values

Occupational exposure limit values (Workplace Exposure Limits)

This information is not available.

Relevant DNELs of components of the mixture							
Name of sub- stance	CAS No	End- point	Threshol d level	Protection goal, route of exposure	Used in	Exposure time	
Potassium iodide	7681-11-0	DNEL	0,07 mg/ m³	human, inhalat- ory	worker (industry)	chronic - systemic effects	
Potassium iodide	7681-11-0	DNEL	1 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects	
Potassium iodate	7758-05-6	DNEL	8,814 mg/ m ³	human, inhalat- ory	worker (industry)	chronic - systemic effects	
Potassium iodate	7758-05-6	DNEL	5 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects	

Relevant PNECs of components of the mixture

Name of sub- stance	CAS No	End- point	Threshol d level	Organism	Environmental compartment	Exposure time
Potassium iodide	7681-11-0	PNEC	0,007 ^{mg} / _l	aquatic organ- isms	freshwater	short-term (single instance)
Potassium iodide	7681-11-0	PNEC	0,007 ^{mg} / kg	aquatic organ- isms	freshwater sedi- ment	short-term (single instance)
Potassium iodate	7758-05-6	PNEC	1 ^{mg} / _l	aquatic organ- isms	freshwater	short-term (single instance)
Potassium iodate	7758-05-6	PNEC	0,1 ^{mg} / _l	aquatic organ- isms	marine water	short-term (single instance)
Potassium iodate	7758-05-6	PNEC	27,8 ^{mg} / _l	aquatic organ- isms	sewage treatment plant (STP)	short-term (single instance)
Potassium iodate	7758-05-6	PNEC	25,61 ^{mg} / ^{kg}	aquatic organ- isms	freshwater sedi- ment	short-term (single instance)
Potassium iodate	7758-05-6	PNEC	25,61 ^{mg} / _{kg}	aquatic organ- isms	marine sediment	short-term (single instance)
Potassium iodate	7758-05-6	PNEC	5,867 ^{mg} / _{kg}	terrestrial organ- isms	soil	short-term (single instance)

8.2 Exposure controls

Individual protection measures (personal protective equipment)

Eye/face protection



acc. to Regulation (EC) No. 1907/2006 (REACH)

Iodide-iodate solution 0,05 mol I_2/l - 0,1 N, volumetric standard solution

article number: 0228

Use safety goggle with side protection.

Skin protection



hand protection

Wear suitable gloves. Chemical protection gloves are suitable, which are tested according to EN 374. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves. The times are approximate values from measurements at 22 ° C and permanent contact. Increased temperatures due to heated substances, body heat etc. and a reduction of the effective layer thickness by stretching can lead to a consider-able reduction of the breakthrough time. If in doubt, contact manufacturer. At an approx. 1.5 times larger / smaller layer thickness, the respective breakthrough time is doubled / halved. The data apply only to the pure substance. When transferred to substance mixtures, they may only be considered as a guide.

• type of material

NBR (Nitrile rubber)

material thickness

>0,11 mm

• breakthrough times of the glove material

>480 minutes (permeation: level 6)

other protection measures

Take recovery periods for skin regeneration. Preventive skin protection (barrier creams/ointments) is recommended.

Respiratory protection



Respiratory protection necessary at: Aerosol or mist formation. Usually no personal respirative protection necessary.

Environmental exposure controls

Keep away from drains, surface and ground water.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	liquid
Colour	colourless
Odour	odourless
Melting point/freezing point	not determined
Boiling point or initial boiling point and boiling range	100 °C at 1.013 hPa
Flammability	non-combustible
Lower and upper explosion limit	not determined



acc. to Regulation (EC) No. 1907/2006 (REACH)

Iodide-iodate solution 0,05 mol I_2/I - 0,1 N, volumetric standard solution



articl	e number: 0228	
	Flash point	not determined
	Auto-ignition temperature	not determined
	Decomposition temperature	not relevant
	pH (value)	not determined
	Kinematic viscosity	not determined
	Solubility(ies)	
	Water solubility	miscible in any proportion
	Partition coefficient	
	Partition coefficient n-octanol/water (log value):	not relevant (inorganic)
	Vapour pressure	23 hPa at 20 °C
	Density and/or relative density	
	Density	1,02 ^g / _{cm³} at 20 °C
	Relative vapour density	information on this property is not available
	Particle characteristics	not relevant (liquid)
	Other safety parameters	
	Oxidising properties	none
9.2	Other information	
	Information with regard to physical hazard classes:	hazard classes acc. to GHS (physical hazards): not relevant
	Other safety characteristics:	
	Miscibility	completely miscible with water

SECTION 10: Stability and reactivity

10.1 Reactivity

This material is not reactive under normal ambient conditions.

10.2 Chemical stability

The material is stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

10.3 Possibility of hazardous reactions

No known hazardous reactions.

10.4 Conditions to avoid

Direct light irradiation. UV-radiation/sunlight.

10.5 Incompatible materials

There is no additional information.

acc. to Regulation (EC) No. 1907/2006 (REACH)

Iodide-iodate solution 0,05 mol I_2/l - 0,1 N, volumetric standard solution

article number: 0228

10.6 Hazardous decomposition products

Hazardous combustion products: see section 5.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Test data are not available for the complete mixture.

Classification procedure

The method for classification of the mixture is based on ingredients of the mixture (additivity formula).

Classification acc. to GHS

Acute toxicity

Shall not be classified as acutely toxic.

Acute toxicity of components of the mixture								
Name of substance	CAS No	Exposure route	Endpoint	Value	Species			
Potassium iodide	7681-11-0	dermal	LD50	>2.000 ^{mg} / _{kg}	rat			
Potassium iodide	7681-11-0	oral	LD50	3.118 ^{mg} / _{kg}	rat			
Potassium iodate	7758-05-6	dermal	LD50	>2.000 ^{mg} / _{kg}	rat			

Skin corrosion/irritation

Shall not be classified as corrosive/irritant to skin.

Serious eye damage/eye irritation

Shall not be classified as seriously damaging to the eye or eye irritant.

Respiratory or skin sensitisation

Shall not be classified as a respiratory or skin sensitiser.

Germ cell mutagenicity

Shall not be classified as germ cell mutagenic.

Carcinogenicity

Shall not be classified as carcinogenic.

Reproductive toxicity

Shall not be classified as a reproductive toxicant.

Specific target organ toxicity - single exposure

Shall not be classified as a specific target organ toxicant (single exposure).

Specific target organ toxicity - repeated exposure

May cause damage to organs (thyroid gland) through prolonged or repeated exposure (if swallowed).

Hazard category	Target organ	Exposure route
2	thyroid gland	if swallowed

Aspiration hazard

Shall not be classified as presenting an aspiration hazard.



acc. to Regulation (EC) No. 1907/2006 (REACH)

Iodide-iodate solution 0,05 mol I_2/I - 0,1 N, volumetric standard solution

article number: 0228

Symptoms related to the physical, chemical and toxicological characteristics

• If swallowed

Data are not available.

• If in eyes

Data are not available.

• If inhaled

Data are not available.

• If on skin

Data are not available.

Other information

none

11.2 Endocrine disrupting properties None of the ingredients are listed.

11.3 Information on other hazards

There is no additional information.

SECTION 12: Ecological information

12.1 Toxicity

Shall not be classified as hazardous to the aquatic environment.

Aquatic toxicity (acute) of components of the mixture							
Name of sub- stance	CAS No	Endpoint	Value	Species	Exposure time		
Potassium iodide	7681-11-0	LC50	3.780 ^{mg} / _l	fish	96 h		
Potassium iodide	7681-11-0	EC50	10,6 ^{mg} / _l	aquatic invertebrates	24 h		
Potassium iodate	7758-05-6	EC50	>100 ^{mg} / _l	daphnia magna	48 h		

Biodegradation

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

12.2 Process of degradability

Data are not available.

12.3 Bioaccumulative potential

Data are not available.

Bioaccumulative potential of components of the mixture						
Name of substance	CAS No	BCF	Log KOW	BOD5/COD		
Potassium iodate	7758-05-6		-1 (25 °C)			

12.4 Mobility in soil

Data are not available.



acc. to Regulation (EC) No. 1907/2006 (REACH)

Iodide-iodate solution 0,05 mol I_2/I - 0,1 N, volumetric standard solution

article number: 0228

- **12.5 Results of PBT and vPvB assessment** Data are not available.
- **12.6 Endocrine disrupting properties** None of the ingredients are listed.
- **12.7 Other adverse effects** Data are not available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods



This material and its container must be disposed of as hazardous waste. Dispose of contents/container in accordance with local/regional/national/international regulations.

Sewage disposal-relevant information

Do not empty into drains.

13.2 Relevant provisions relating to waste

The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process. Waste catalogue ordinance (Germany).

13.3 Remarks

Waste shall be separated into the categories that can be handled separately by the local or national waste management facilities. Please consider the relevant national or regional provisions.

SECTION 14: Transport information

- 14.1 UN number or ID number
- 14.2 UN proper shipping name
- 14.3 Transport hazard class(es)
- 14.4 Packing group
- 14.5 Environmental hazards

not subject to transport regulations

not assigned

none

not assigned

non-environmentally hazardous acc. to the dangerous goods regulations

14.6 Special precautions for user

There is no additional information.

- **14.7** Maritime transport in bulk according to IMO instruments The cargo is not intended to be carried in bulk.
- 14.8 Information for each of the UN Model Regulations

Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN) - Additional information

Not subject to ADR, RID and ADN.

International Maritime Dangerous Goods Code (IMDG) - Additional information Not subject to IMDG.



acc. to Regulation (EC) No. 1907/2006 (REACH)



Iodide-iodate solution 0,05 mol I_2/l - 0,1 N, volumetric standard solution

article number: 0228

International Civil Aviation Organization (ICAO-IATA/DGR) - Additional information Not subject to ICAO-IATA.

SECTION 15: Regulatory information

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

Relevant provisions of the European Union (EU)

Seveso Directive

2012/18/EU (Seveso III)			
Νο	Dangerous substance/hazard categories	Qualifying quantity (tonnes) for the ap- plication of lower and upper-tier re- quirements	Notes
	not assigned		

Deco-Paint Directive

VOC co	ntent	0 % 0 9/1
		- 1

Industrial Emissions Directive (IED)

VOC content	0 %
VOC content (Water content was discounted)	0 ^g / _l

Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS)

none of the ingredients are listed

Regulation concerning the establishment of a European Pollutant Release and Transfer Register (PRTR)

none of the ingredients are listed

Water Framework Directive (WFD)

List of pollutants (WFD)

Name of substance	Name acc. to inventory	CAS No	Listed in	Remarks
Potassium iodide	Substances and preparations, or the breakdown products of such, which have been proved to pos- sess carcinogenic or mutagenic properties or properties which may affect steroidogenic, thyroid, reproduction or other endocrine- related functions in or via the aquatic environment		a)	
Potassium iodide	Metals and their compounds		a)	
Potassium iodate	Metals and their compounds		a)	

Legend

A) Indicative list of the main pollutants

Regulation on the marketing and use of explosives precursors

none of the ingredients are listed

acc. to Regulation (EC) No. 1907/2006 (REACH)

Iodide-iodate solution 0,05 mol I₂/I - 0,1 N, volumetric standard solution

article number: 0228

Regulation on drug precursors

none of the ingredients are listed

Regulation on substances that deplete the ozone layer (ODS)

none of the ingredients are listed

Regulation concerning the export and import of hazardous chemicals (PIC)

none of the ingredients are listed

Regulation on persistent organic pollutants (POP)

none of the ingredients are listed

Other information

Directive 94/33/EC on the protection of young people at work. Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers.

National inventories

Country	Inventory	Status
AU	AIIC	all ingredients are listed
CA	DSL	all ingredients are listed
CN	IECSC	all ingredients are listed
EU	ECSI	all ingredients are listed
EU	REACH Reg.	all ingredients are listed
JP	CSCL-ENCS	all ingredients are listed
KR	KECI	all ingredients are listed
MX	INSQ	not all ingredients are listed
NZ	NZIoC	all ingredients are listed
PH	PICCS	all ingredients are listed
TR	CICR	not all ingredients are listed
TW	TCSI	all ingredients are listed
US	TSCA	all ingredients are listed

Legend

AIIC Australian Inventory of Industrial Chemicals Adstralian Inventory of Industrial Chemicals Chemical Inventory and Control Regulation List of Existing and New Chemical Substances (CSCL-ENCS) Domestic Substances List (DSL) EC Substance Inventory (EINECS, ELINCS, NLP) Inventory of Existing Chemical Substances Produced or Imported in China National Inventory of Chemical Substances CICR CSCL-ENCS DSL ECSI IECSC INSQ

 INSQ
 National Inventory of Chemical Substances

 KECI
 Korea Existing Chemicals Inventory

 NZIoC
 New Zealand Inventory of Chemicals

 PICCS
 Philippine Inventory of Chemicals and Chemical Substances (PICCS)

 REACH Reg.
 REACH registered substances

 TCSI
 Taiwan Chemical Substance Inventory

 TSCA
 Toxic Substance Control Act

15.2 **Chemical Safety Assessment**

Chemical safety assessments for substances in this mixture were not carried out.



acc. to Regulation (EC) No. 1907/2006 (REACH)



Iodide-iodate solution 0,05 mol I_2/I - 0,1 N, volumetric standard solution

article number: 0228

SECTION 16: Other information

Indication of changes (revised safety data sheet)

Alignment to regulation: Restructuring: section 9, section 14

Section	Former entry (text/value)	Actual entry (text/value)	Safety- relev- ant
2.1		Classification acc. to GHS: change in the listing (table)	yes
2.1		The most important adverse physicochemical, human health and environmental effects: Delayed or immediate effects can be expected after short or long-term exposure.	yes
2.2		Hazard statements: change in the listing (table)	yes
2.2	Precautionary statements - disposal		yes
2.2		Precautionary statements - disposal: change in the listing (table)	yes
2.2	Labelling of packages where the contents do not exceed 125 ml: Signal word: Warning		yes
2.2		Labelling of packages where the contents do not exceed 125 ml: change in the listing (table)	yes
2.2		Labelling of packages where the contents do not exceed 125 ml: change in the listing (table)	yes
2.2	contains: Potassium iodide		yes
2.3	Other hazards: There is no additional information.	Other hazards	yes
2.3		Results of PBT and vPvB assessment: This mixture does not contain any substances that are assessed to be a PBT or a vPvB.	yes

Abbreviations and acronyms

Abbr.	Descriptions of used abbreviations		
ADN	Accord européen relatif au transport international des marchandises dangereuses par voies de naviga- tion intérieures (European Agreement concerning the International Carriage of Dangerous Goods by In- land Waterways)		
ADR	Accord relatif au transport international des marchandises dangereuses par route (Agreement concern- ing the International Carriage of Dangerous Goods by Road)		
BCF	Bioconcentration factor		
BOD	Biochemical Oxygen Demand		
CAS	Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)		
COD	Chemical oxygen demand		
DGR	Dangerous Goods Regulations (see IATA/DGR)		
DNEL	Derived No-Effect Level		

acc. to Regulation (EC) No. 1907/2006 (REACH)



Iodide-iodate solution 0,05 mol I_2/I - 0,1 N, volumetric standard solution

article number: 0228

Abbr.	Descriptions of used abbreviations	
EC50	Effective Concentration 50 %. The EC50 corresponds to the concentration of a tested substance causing 50 % changes in response (e.g. on growth) during a specified time interval	
EC No	The EC Inventory (EINECS, ELINCS and the NLP-list) is the source for the seven-digit EC number, an identi- fier of substances commercially available within the EU (European Union)	
EINECS	European Inventory of Existing Commercial Chemical Substances	
ELINCS	European List of Notified Chemical Substances	
Eye Dam.	Seriously damaging to the eye	
Eye Irrit.	Irritant to the eye	
GHS	"Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Na- tions	
ΙΑΤΑ	International Air Transport Association	
IATA/DGR	Dangerous Goods Regulations (DGR) for the air transport (IATA)	
ICAO	International Civil Aviation Organization	
IMDG	International Maritime Dangerous Goods Code	
LC50	Lethal Concentration 50%: the LC50 corresponds to the concentration of a tested substance causing 50 % lethality during a specified time interval	
LD50	Lethal Dose 50 %: the LD50 corresponds to the dose of a tested substance causing 50 % lethality during a specified time interval	
log KOW	n-Octanol/water	
NLP	No-Longer Polymer	
Ox. Sol.	Oxidising solid	
PBT	Persistent, Bioaccumulative and Toxic	
PNEC	Predicted No-Effect Concentration	
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals	
RID	Règlement concernant le transport International ferroviaire des marchandises Dangereuses (Regula- tions concerning the International carriage of Dangerous goods by Rail)	
STOT RE	Specific target organ toxicity - repeated exposure	
VOC	Volatile Organic Compounds	
vPvB	Very Persistent and very Bioaccumulative	

Key literature references and sources for data

Agreement concerning the International Carriage of Dangerous Goods by Road (ADR). Regulations concerning the International Carriage of Dangerous Goods by Rail (RID). International Maritime Dangerous Goods Code (IMDG). Dangerous Goods Regulations (DGR) for the air transport (IATA).

Classification procedure

Physical and chemical properties. The classification is based on tested mixture. Health hazards. Environmental hazards. The method for classification of the mixture is based on ingredients of the mixture (additivity formula).

acc. to Regulation (EC) No. 1907/2006 (REACH)



Iodide-iodate solution 0,05 mol I_2/I - 0,1 N, volumetric standard solution

article number: 0228

List of relevant phrases (code and full text as stated in section 2 and 3)

Code	Text
H272	May intensify fire; oxidiser.
H318	Causes serious eye damage.
H372	Causes damage to organs (thyroid gland) through prolonged or repeated exposure (if swallowed).
H373	May cause damage to organs (thyroid gland) through prolonged or repeated exposure (if swallowed).

Disclaimer

This information is based upon the present state of our knowledge. This SDS has been compiled and is solely intended for this product.