

according to Regulation UK SI 2019/758 and UK SI 2020/1577 as amended

Revision Date 30-Nov-2024

Revision Number 5

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THECOMPANY/UNDERTAKING

1.1. Product identifier	
Product Description: Cat No. :	<u>Thallium, plasma standard solution, Specpure®, TI 1000µg/ml</u> 13851
1.2. Relevant identified uses of the	substance or mixture and uses advised against
Recommended Use Uses advised against	Laboratory chemicals. No Information available
1.3. Details of the supplier of the sa	afety data sheet
Company	Avocado Research Chemicals Ltd. (Part of Thermo Fisher Scientific) Shore Road, Heysham Lancashire, LA3 2XY, United Kingdom Office Tel: +44 (0) 1524 850506 Office Fax: +44 (0) 1524 850608
E-mail address	begel.sdsdesk@thermofisher.com
<u>1.4. Emergency telephone number</u>	For information US call: 001-800-227-6701 / Europe call: +32 14 57 52 11 Emergency Number US :001-201-796-7100 / Europe: +32 14 57 52 99 CHEMTREC Tel. No. US :001-800-424-9300 / Europe: 001-703-527-3887
Poison Centre - Emergency information services	Ireland : National Poisons Information Centre (NPIC) - 01 809 2166 (8am-10pm, 7 days a week) Malta : +356 2395 2000 Cyprus : +357 2240 5611

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

GHS Classification - According to GB-CLP Regulations UK SI 2019/720 and UK SI 2020/1567

Physical hazards

Substances/mixtures corrosive to metal

Health hazards

Category 1 (H290)

Thallium, plasma standard solution, Specpure®, TI 1000µg/ml

Acute Inhalation Toxicity - Vapors Skin Corrosion/Irritation Serious Eye Damage/Eye Irritation

Environmental hazards Based on available data, the classification criteria are not met

Full text of Hazard Statements: see section 16

2.2. Label elements



Signal Word

Danger

Hazard Statements

H290 - May be corrosive to metals

H332 - Harmful if inhaled

H314 - Causes severe skin burns and eye damage

Precautionary Statements

P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing

P280 - Wear protective gloves/protective clothing/eye protection/face protection

P301 + P330 + P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting

P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

P310 - Immediately call a POISON CENTER or doctor/physician

2.3. Other hazards

No information available Toxic to terrestrial vertebrates This product does not contain any known or suspected endocrine disruptors

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2. Mixtures

Component	CAS No	EC No	Weight %	GHS Classification - According to GB-CLP Regulations UK SI 2019/720 and UK SI 2020/1567
Water	7732-18-5	231-791-2	94.90	-
Nitric acid …% [C ≤ 70 %]	7697-37-2	231-714-2	5.00	Ox. Liq. 3 (H272) Met. Corr. 1 (H290) Acute Tox. 3 (H331) Skin Corr. 1A (H314) Eye Dam. 1 (H318) (EUH071)
Thallium	7440-28-0	EEC No. 231-138-1	0.10	Acute Tox. 2 (H300)

Category 4 (H332) Category 1 (H314) B Category 1 (H318)

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Component	Specific concentration limits (SCL's)	M-Factor	Component notes
Nitric acid …% [C ≤ 70 %]	Ox. Liq. 2 ::: C>=99% Ox. Liq. 3 :: 65%<=C<99% Acute Tox. 1 (inhal) :: C>=70% Acute Tox. 3 (inhal) :: 70%>C>=26.5% Acute Tox. 4 (inhal) :: 26.5%>C>=13.25% Skin Corr. 1A :: C>=20% Skin Corr. 1B :: 5%<=C<20% Met. Corr. 1 :: C>=2% EUH071 :: C>=20%	-	-

Component	ECHA (RAC) ATE (Oral)	ECHA (RAC) ATE (Dermal)	ECHA (RAC) ATE (Inhalation)
Nitric acid …% [C ≤ 70 %]	-	-	ATE = 2.65 mg/L (vapours)
ECHA (PAC) Committee for Rick Access	ont European CHemicals Agency	1	

ECHA (RAC) - Committee for Risk Assessment - European CHemicals Agency

ATE - Acute Toxiciy Estimate

Full text of Hazard Statements: see section 16

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

General Advice	Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.
Eye Contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required.
Skin Contact	Wash off immediately with plenty of water for at least 15 minutes. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Call a physician immediately.
Ingestion	Do NOT induce vomiting. Clean mouth with water. Never give anything by mouth to an unconscious person. Call a physician immediately.
Inhalation	If not breathing, give artificial respiration. Remove from exposure, lie down. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Call a physician immediately.
Self-Protection of the First Aider	Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.
4.2. Most important symptoms and	effects, both acute and delayed
	Causes burns by all exposure routes. Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation

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

Notes to Physician Treat symptomatically.

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SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Suitable Extinguishing Media

Not combustible. CO₂, dry chemical, dry sand, alcohol-resistant foam.

Extinguishing media which must not be used for safety reasons

No information available.

5.2. Special hazards arising from the substance or mixture

Thermal decomposition can lead to release of irritating gases and vapors. The product causes burns of eyes, skin and mucous membranes.

Hazardous Combustion Products

Nitrogen oxides (NOx), Thallium oxide.

5.3. Advice for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Ensure adequate ventilation. Use personal protective equipment as required. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

6.2. Environmental precautions

Should not be released into the environment. Do not allow material to contaminate ground water system. Do not flush into surface water or sanitary sewer system.

6.3. Methods and material for containment and cleaning up

Soak up with inert absorbent material. Keep in suitable, closed containers for disposal.

6.4. Reference to other sections

Refer to protective measures listed in Sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Use only under a chemical fume hood. Do not breathe mist/vapors/spray. Do not ingest. If swallowed then seek immediate medical assistance.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Wash hands before breaks and after work.

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7.2. Conditions for safe storage, including any incompatibilities

Corrosives area. Keep containers tightly closed in a dry, cool and well-ventilated place.

Technical Rules for Hazardous Substances (TRGS) 510Class 8BStorage Class (LGK) (Germany)Class 8B

7.3. Specific end use(s)

Use in laboratories

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Exposure limits

List source(s): **EU** - Commission Directive (EU) 2019/1831 of 24 October 2019 establishing a fifth list of indicative occupational exposure limit values pursuant to Council Directive 98/24/EC and amending Commission Directive 2000/39/EC **UK** - EH40/2005 Work Exposure Limits, Fourth edition. Published 2020. **IRE** - 2021 Code of Practice for the Chemical Agents Regulations, Schedule 1. Published by the Health and Safety Authority

Component	The United Kingdom	European Union	Ireland
Nitric acid …% [C ≤ 70 %]	STEL: 1 ppm 15 min	STEL: 1 ppm (15min)	STEL: 1 ppm 15 min
	STEL: 2.6 mg/m ³ 15 min	STEL: 2.6 mg/m ³ (15min)	STEL: 2.6 mg/m ³ 15 min
Thallium	TWA: 0.1 mg/m ³		TWA: 0.02 mg/m ³ 8 hr. Tl
	-		STEL: 0.06 mg/m ³ 15 min
			Skin

Biological limit values

This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies

Derived No Effect Level (DNEL) / Derived Minimum Effect Level (DMEL)

No information available

Predicted No Effect Concentration (PNEC)

No information available.

8.2. Exposure controls

Engineering Measures

Ensure that eyewash stations and safety showers are close to the workstation location.

Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

Personal protective equipment Eye Protection	Goggles (European standard - EN 166)
Hand Protection	Protective gloves

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Glove material	Breakthrough time	Glove thickness	EU standard	Glove comments
Neoprene	See manufacturers	-	EN 374	(minimum requirement)
	recommendations	aved elething		
Skin and body pro	tection Long si	eeved clothing.		
(Refer to manufacturer/s Ensure gloves are suita	ructions regarding perm supplier for information) ble for the task: Chemic o take into consideratio	cal compatability, Dex n the specific local co	terity, Operational cond	ovided by the supplier of the gloves. ditions, User susceptibility, e.g. he product is used, such as the danger
Respiratory Protec	appropr To prote	iate certified respirate	ors.	exposure limit they must use ent must be the correct fit and be used
Large scale/emergenc		of insufficient ventilat mended Filter type:	tion, wear suitable resp Acid gases filter	iratory equipment
Small scale/Laborator	limits ar	e exceeded or if irrita	pean Standard EN 149 tion or other symptoms ece Fit Test should be o	•
Environmental exposu	ire controls No info	mation available.		

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Physical State	Liquid	
Appearance Odor Odor Threshold Melting Point/Range Softening Point Boiling Point/Range Flammability (liquid) Flammability (solid,gas) Explosion Limits	Colorless No information available No data available No data available No data available No information available No data available Not applicable No data available	Liquid
Flash Point Autoignition Temperature Decomposition Temperature pH Viscosity Water Solubility Solubility in other solvents Partition Coefficient (n-octanol/wat	No information available No data available No data available No information available No data available Miscible No information available	Method - No information available
Component Nitric acid …% [C ≤ 70 %] Vapor Pressure Density / Specific Gravity Bulk Density Vapor Density Particle characteristics	log Pow -2.3 23 hPa @ 20 °C No data available Not applicable No data available Not applicable (liquid)	Liquid (Air = 1.0)

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9.2. Other information

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity	None known, based on information available		
10.2. Chemical stability	Stable under normal conditions.		
10.3. Possibility of hazardous reactions			
Hazardous Polymerization Hazardous Reactions	No information available. None under normal processing.		
10.4. Conditions to avoid	Incompatible products. Excess heat.		
10.5. Incompatible materials	Strong bases.		

10.6. Hazardous decomposition products

Nitrogen oxides (NOx). Thallium oxide.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Product Information

(a) acute toxicity;Based on available data, the classification criteria are not metOralBased on available data, the classification criteria are not metDermalBased on available data, the classification criteria are not metInhalationCategory 4

Toxicology data for the components

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Water	-	-	-
Nitric acid …% [C ≤ 70 %]	-	-	LC50 = 2500 ppm. (Rat) 1h

Component	ECHA (RAC) ATE (Oral)	ECHA (RAC) ATE (Dermal)	ECHA (RAC) ATE (Inhalation)
Nitric acid …% [C ≤ 70 %]	-	-	ATE = 2.65 mg/L (vapours)

ECHA (RAC) - Committee for Risk Assessment - European CHemicals Agency

ATE - Acute Toxiciy Estimate

(b) skin corrosion/irritation; Category 1 B

(c) serious eye damage/irritation; Category 1

(d) respiratory or skin sensitization;

RespiratoryNo data availableSkinNo data available

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(e) germ cell mutagenicity;	No data available						
(f) carcinogenicity;	No data available						
	There are no known carcinogenic chemicals in	n this product					
g) reproductive toxicity;	No data available						
h) STOT-single exposure;	No data available						
(i) STOT-repeated exposure;	No data available						
Target Organs	None known.						
j) aspiration hazard;	No data available						
Symptoms / effects,both acute and delayed	Product is a corrosive material. Use of gastric Possible perforation of stomach or esophagus severe swelling, severe damage to the delicate	should be investigated. Ingestion causes					
1.2. Information on other hazards							
Endocrine Disrupting Properties	Assess endocrine disrupting properties for human health. This product does not contain any known or suspected endocrine disruptors.						
SE	CTION 12: ECOLOGICAL INFORM	MATION					
I <u>2.1. Toxicity</u> Ecotoxicity effects	May cause long-term adverse effects in the er contaminate ground water system.	vironment. Do not allow material to					
2.2. Persistence and degradability Persistence Degradation in sewage treatment plant	Product contains heavy metals. Discharge into pre-treatment is necessary based on information available, May persist. Contains substances known to be hazardous t water treatment plants.						
2.3. Bioaccumulative potential	May have some potential to bioaccumulate						
Component	log Pow	Bioconcentration factor (BCF)					
Nitric acid …% [C ≤ 70 %]	-2.3	No data available					
12.4. Mobility in soil	The product is water soluble, and may spread environment due to its water solubility. Highly						
12.5. Results of PBT and vPvB assessment	No data available for assessment.						
12.6. Endocrine disrupting							
ALFAA13851		Bago 9/12					

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properties

Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

12.7. Other adverse effects	
Persistent Organic Pollutant	This product does not contain any known or suspected substance
Ozone Depletion Potential	This product does not contain any known or suspected substance

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste from Residues/Unused Products	Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.
Contaminated Packaging	Dispose of this container to hazardous or special waste collection point.
European Waste Catalogue (EWC)	According to the European Waste Catalog, Waste Codes are not product specific, but application specific.
Other Information	Waste codes should be assigned by the user based on the application for which the product was used. Do not empty into drains. Do not flush to sewer. Large amounts will affect pH and harm aquatic organisms.

SECTION 14: TRANSPORT INFORMATION

IMDG/IMO

<u>14.1. UN number</u> <u>14.2. UN proper shipping name</u> <u>14.3. Transport hazard class(es)</u> <u>14.4. Packing group</u>	UN2031 NITRIC ACID SOLUTION 8 II
ADR	
14.1. UN number 14.2. UN proper shipping name 14.3. Transport hazard class(es) 14.4. Packing group	UN2031 NITRIC ACID SOLUTION 8 II
IATA	
14.1. UN number 14.2. UN proper shipping name 14.3. Transport hazard class(es) 14.4. Packing group	UN2031 NITRIC ACID SOLUTION 8 II
14.5. Environmental hazards	No hazards identified
14.6. Special precautions for user	No special precautions required.

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SECTION 15: REGULATORY INFORMATION

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

International Inventories

China, X = listed, Australia, U.S.A. (TSCA), Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Australia (AICS), Korea (KECL), China (IECSC), Japan (ENCS), Philippines (PICCS), Taiwan (TCSI), Japan (ISHL), New Zealand (NZIoC), Japan (ISHL). US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)

Component	CAS No	EINECS	ELINCS	NLP	IECSC	TCSI	KECL	ENCS	ISHL
Water	7732-18-5	231-791-2	-	-	Х	Х	KE-35400	Х	-
Nitric acid% [C ≤ 70 %]	7697-37-2	231-714-2	-	-	Х	Х	KE-25911	Х	Х
Thallium	7440-28-0	231-138-1	-	-	Х	Х	KE-33716	Х	-

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	DSL	NDSL	AICS	NZIoC	PICCS
Water	7732-18-5	Х	ACTIVE	Х	-	Х	Х	Х
Nitric acid% [C ≤ 70 %]	7697-37-2	Х	ACTIVE	Х	-	Х	Х	Х
Thallium	7440-28-0	X	ACTIVE	Х	-	X	X	Х

Legend: X - Listed '-' - Not Listed

KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

Authorisation/Restrictions according to EU REACH

Component	CAS No	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Water	7732-18-5	-	-	-
Nitric acid …% [C ≤ 70 %]	7697-37-2	-	Use restricted. See entry 75. (see link for restriction details)	-
Thallium	7440-28-0	-	Use restricted. See entry 75. (see link for restriction details)	-

REACH links

https://echa.europa.eu/substances-restricted-under-reach

Seveso III Directive (2012/18/EC)

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements
Water	7732-18-5	Not applicable	Not applicable
Nitric acid% [C ≤ 70 %]	7697-37-2	Not applicable	Not applicable
Thallium	7440-28-0	Not applicable	Not applicable

Regulation (EC) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of dangerous chemicals

Not applicable

Contains component(s) that meet a 'definition' of per & poly fluoroalkyl substance (PFAS)? Not applicable Thallium, plasma standard solution, Specpure®, TI 1000µg/ml

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work .

Take note of Directive 2000/39/EC establishing a first list of indicative occupational exposure limit values

National Regulations

UK - Take note of Control of Substances Hazardous to Health Regulations (COSHH) 2002 and 2005 Amendment

WGK Classification

Water endangering class = 1 (self classification)

Component	Germany - Water Classification (AwSV)	Germany - TA-Luft Class
Nitric acid …% [C ≤ 70 %]	WGK1	
Thallium		Class I: 0.01 mg/m ³ (Massenkonzentration)

Component	Switzerland - Ordinance on the Reduction of Risk from handling of hazardous substances preparation (SR 814.81)	Switzerland - Ordinance on Incentive Taxes on Volatile Organic Compounds (OVOC)	Switzerland - Ordinance of the Rotterdam Convention on the Prior Informed Consent Procedure
Nitric acid% [C ≤ 70 %]	Prohibited and Restricted		
7697-37-2 (5.00)	Substances		
Thallium	Prohibited and Restricted		
7440-28-0 (0.10)	Substances		

15.2. Chemical safety assessment

Chemical Safety Assessment/Reports (CSA/CSR) are not required for mixtures

SECTION 16: OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3

- H290 May be corrosive to metals
- H332 Harmful if inhaled
- H314 Causes severe skin burns and eye damage
- H318 Causes serious eye damage
- H272 May intensify fire; oxidizer
- H300 Fatal if swallowed
- H330 Fatal if inhaled
- H331 Toxic if inhaled
- EUH071 Corrosive to the respiratory tract

Legend

CAS - Chemical Abstracts Service

EINECS/ELINCS - European Inventory of Existing Commercial Chemical DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances/EU List of Notified Chemical Substances PICCS - Philippines Inventory of Chemicals and Chemical Substances **IECSC** - Chinese Inventory of Existing Chemical Substances KECL - Korean Existing and Evaluated Chemical Substances

WEL - Workplace Exposure Limit ACGIH - American Conference of Governmental Industrial Hygienists **DNEL** - Derived No Effect Level

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory Substances List **ENCS** - Japanese Existing and New Chemical Substances AICS - Australian Inventory of Chemical Substances NZIOC - New Zealand Inventory of Chemicals

TWA - Time Weighted Average IARC - International Agency for Research on Cancer Predicted No Effect Concentration (PNEC)

RPE - Respiratory Protective Equipment LD50 - Lethal Dose 50% EC50 - Effective Concentration 50% LC50 - Lethal Concentration 50% NOEC - No Observed Effect Concentration POW - Partition coefficient Octanol:Water PBT - Persistent, Bioaccumulative, Toxic vPvB - very Persistent, very Bioaccumulative ADR - European Agreement Concerning the International Carriage of ICAO/IATA - International Civil Aviation Organization/International Air Dangerous Goods by Road Transport Association IMO/IMDG - International Maritime Organization/International Maritime MARPOL - International Convention for the Prevention of Pollution from Dangerous Goods Code Ships **OECD** - Organisation for Economic Co-operation and Development ATE - Acute Toxicity Estimate BCF - Bioconcentration factor VOC - (Volatile Organic Compound) Kev literature references and sources for data https://echa.europa.eu/information-on-chemicals Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]: Physical hazards On basis of test data **Health Hazards**

Environmental hazards

Calculation method Calculation method

Training Advice

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.

Prepared By Revision Date Revision Summary Health, Safety and Environmental Department

This safety data sheet complies with Regulation UK SI 2019/758 and UK SI 2020/1577 as amended.

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of Safety Data Sheet

SAFETY DATA SHEET Thallium, plasma standard solution, Specpure®, TI 1000µg/ml

30-Nov-2024 SDS sections updated.