

Australian statement of hazardous nature: Classified as hazardous according to criteria of Safe Work Australia

Section 1 - Identification

Product Name Chloroform - stabilised

CAS No 67-66-3

Synonyms Methane trichloride; Methenyl trichloride; Formyl trichloride

Product Code C/4961/17

Address ThermoFisher Scientific Australia Pty Ltd

5 Caribbean Drive, Scoresby VICTORIA 3179, Australia

Emergency Tel. CHEMTREC®

03 9757 4559 or +613 9757 4559

Telephone / Fax Numbers Tel: 1300 735 292

Fax: 1800 067 639

E-mail address ANZinfo@thermofisher.com

Recommended Use Laboratory chemicals.

Uses advised against

This product contains one or more substance(s) on the Illicit Drug Precursors/Reagents list.

Verify requirements related to using, handling and storing these substances. This product contains one or more substance(s) subject to Prohibition, Authorization or Restriction. Verify that requirements related to using, handling, and storing substances subject to prohibition, authorization or restriction are met. This product does not contain any substance(s) listed on the voluntary National Code of Practice for Chemicals of Security

Concern.

Section 2 - Hazard(s) Identification

Classification under Safe Work Australia

Classified as hazardous according to criteria of Safe Work Australia

Physical hazards

No hazards identified

Health hazards

Acute Oral Toxicity Category 4 Acute Inhalation Toxicity - Vapors Category 3 Skin Corrosion/Irritation Category 2 Serious Eye Damage/Eye Irritation Category 2 Carcinogenicity Category 2 Reproductive Toxicity Category 2 Specific target organ toxicity - (single exposure) Category 3 Specific target organ toxicity - (repeated exposure) Category 1

Environmental hazards

No hazards identified

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Label Elements





Skull and Crossbones

Health Hazard

Signal Word

Danger

Hazard Statements

H302 - Harmful if swallowed

H315 - Causes skin irritation

H319 - Causes serious eye irritation

H331 - Toxic if inhaled

H336 - May cause drowsiness or dizziness

H351 - Suspected of causing cancer

H361 - Suspected of damaging fertility or the unborn child

H372 - Causes damage to organs through prolonged or repeated exposure

Precautionary Statements

P201 - Obtain special instructions before use

P202 - Do not handle until all safety precautions have been read and understood

P260 - Do not breathe dust/fume/gas/mist/vapors/spray

P264 - Wash face, hands and any exposed skin thoroughly after handling

P270 - Do not eat, drink or smoke when using this product

P271 - Use only outdoors or in a well-ventilated area

P280 - Wear eye protection/ face protection

P301 + P312 - IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell

P302 + P352 - IF ON SKIN: Wash with plenty of soap and water

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

P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

P308 + P313 - IF exposed or concerned: Get medical advice/attention

P330 - Rinse mouth

P332 + P313 - If skin irritation occurs: Get medical advice/attention

P362 + P364 - Take off contaminated clothing and wash it before reuse

P403 + P233 - Store in a well-ventilated place. Keep container tightly closed

P405 - Store locked up

P501 - Dispose of contents/ container to an approved waste disposal plant

Other information

Cardiac and respiratory depression

Overexposure may cause decreased heart rate, decreased blood pressure, heart block, and cardiac failure

Toxic to terrestrial vertebrates

Section 3 - Composition and Information on Ingredients

Component	CAS No	Weight %
Chloroform	67-66-3	>99

Section 4 - First Aid Measures

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Inhalation	Remove to fresh air. If not breathing, give artificial respiration. 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. Immediate medical attention is required.
Ingestion	Do NOT induce vomiting. Call a physician or poison control center immediately.
Skin Contact	Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.
Eye Contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

General Advice Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

Self-Protection of the First Aider Use personal protective equipment as required.

First Aid Facilities Eyewash, safety shower and washroom.

Most important symptoms and

effects

. Symptoms of overexposure are dizziness, headache, tiredness, nausea, unconsciousness, cessation of breathing: Causes central nervous system depression

Notes to Physician Treat symptomatically. Signs of overdose include stupor and respiratory depression.

Symptoms may be delayed.

Section 5 - Fire Fighting Measures

Suitable Extinguishing Media

Substance is nonflammable; use agent most appropriate to extinguish surrounding fire.

Extinguishing media which must not be used for safety reasons

No information available.

Hazardous Decomposition Products

Carbon monoxide (CO), Carbon dioxide (CO₂), Phosgene, Hydrogen chloride gas.

Specific Hazards Arising from the Chemical

Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes.

Special protective equipment and precautions for fire fighters

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

Emergency procedures

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

Environmental Precautions

Should not be released into the environment.

Methods for Containment and Clean Up

Clean-up methods - small spillage

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

Clean-up methods - large spillage

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If extremely toxic or used in larger quantities ensure a spillage action plan is in place. Evacuate area. Control the source and/or contain the spill if safe and able to do so. Use temporary diking, sand bags, dry sand, earth or proprietary booms/absorbent pads if available. Obtain advice on containment, neutralisation and clean-up from local emergency responders.

Reference to Other Sections

Refer to protective measures listed in Sections 8 and 13.

Section 7 - Handling and Storage

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.

Conditions for Safe Storage, Including any Incompatibilities

Keep containers tightly closed in a dry, cool and well-ventilated place. Protect from direct sunlight. Store under an inert atmosphere. Protect from moisture.

AS/NZS 2243.10:2004, Safety in laboratories - Storage of chemicals

Section 8 - Exposure Controls and Personal Protection

Exposure limits

AUS - Exposure Standards for Atmospheric Contaminants in the Occupational Environment - Guidance Note on the Interpretation of Exposure Standards for Atmospheric Contaminants in the Occupational Environment [NOHSC:3008(1995)]
Adopted National Exposure Standards for Atmospheric Contaminants in the Occupational Environment [NOHSC:1003(1995)] updated in August, 2005. Safe Work Australia ACGIH - Threshold Limit Values - Ceiling (TLV-C) guidelines by the American Conference of Governmental Industrial Hygienists (ACGIH) for controlling worker exposure to airborne chemical concentrations in the workplace. UK - EH40/2005 Work Exposure Limits, Fourth edition. Published 2020. DE - MAK and BAT values of Hazardous Chemical Compounds in the Work Area. Published by German Research Foundation on July 1, 2011

Component	Australia	New Zealand WEL	ACGIH TLV	The United Kingdom	Germany
Chloroform	TWA: 2 ppm	TWA: 2 ppm	TWA: 10 ppm	TWA: 2 ppm	0.5 ppm TWA MAK
	TWA: 10 mg/m ³	TWA: 9.9 mg/m ³		TWA: 9.9 mg/m ³	2.5 mg/m ³ TWA MAK
		Skin		STEL: 6 ppm	
				STEL: 29.7 mg/m ³	

Biological limit values

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

Exposure Controls

Engineering Measures

Use only under a chemical fume hood. Ensure adequate ventilation, especially in confined areas. 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 (Australian/New Zealand Standard AS/NZS 1337 - Eye protectors for Industrial

applications)

Hand Protection Protective gloves

Glove material	Breakthrough time	Glove thickness	AUS/NZ Standard	Glove comments
Viton (R)	> 480 minutes	-	AS/NZS 2161	As tested under EN374-3 Determination of
				Resistance to Permeation by Chemicals
Neoprene	< 25 minutes	0.45 mm		•

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Butyl rubber < 15 minutes 0.35 mm

Inspect gloves before use.

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information)

Ensure gloves are suitable for the task: Chemical compatability, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.

Remove gloves with care avoiding skin contamination.

Skin and body protection Long sleeved clothing

Use an AS/NZS 1716 approved respirator if exposure limits are exceeded or if irritation or **Repiratory Protection**

> other symptoms are experienced. To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained in line with AS/NZS 1715 on the use

and maintenance of repiratory protective devices

low boiling organic solvent Type AX Brown conforming to EN371 (or AUS/NZ equivalent) **Recommended Filter type:**

Valve filtering: EN405 or Half mask: EN140 plus filter, EN 141 (or AUS/NZ equivalent) Recommended half mask:-

When RPE is used a face piece Fit Test should be conducted

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

Environmental exposure controls Prevent product from entering drains.

Section 9 - Physical and Chemical Properties

Information on basic physical and chemical properties

Colorless **Appearance Physical State** Liquid

Odor aromatic sweet **Odor Threshold** No data available No information available рH Melting Point/Range -63 °C / -81.4 °F **Softening Point** No data available **Boiling Point/Range** 61 °C / 141.8 °F Flash Point No information available

Evaporation Rate No data available

Flammability (solid,gas) Not applicable

No data available **Explosion Limits**

Vapor Pressure 213 mbar @ 20 °C **Vapor Density** No data available

Specific Gravity / Density 1.480

Bulk Density Not applicable **Water Solubility** 8 g/L (20°C)

Solubility in other solvents No information available

Partition Coefficient (n-octanol/water)

Component log Pow

Chloroform

Autoignition Temperature No data available **Decomposition Temperature** No data available 0.56 mPa s at 20 °C **Viscosity Explosive Properties** No information available **Oxidizing Properties** No information available

Other information

Molecular Formula C H CI3 **Molecular Weight** 119.38 VOC Content(%) 100

Method - No information available

Liquid

(Air = 1.0)

Liquid

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Section 10 - Stability and Reactivity

Reactivity None known, based on information available

Stability Stable under normal conditions. UNSTABLE (REACTIVE) UPON DEPLETION OF

INHIBITOR. Light sensitive.

Conditions to Avoid Incompatible products, Heat, flames and sparks, Excess heat, Exposure to light, Protect

from moisture.

Incompatible Materials Strong oxidizing agents, Alkali metals, Aluminium, Acetone.

Hazardous Decomposition Products Carbon monoxide (CO). Carbon dioxide (CO₂). Phosgene. Hydrogen chloride gas.

Hazardous Polymerization Hazardous polymerization does not occur.

Section 11 - Toxicological Information

Information on Toxicological Effects

Product Information

(a) acute toxicity;

Oral Category 4

Dermal Based on available data, the classification criteria are not met

Inhalation Category 3

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Chloroform	LD50 = 908 mg/kg (rat) LD50 = 695 mg/kg (Rat) LD50 = 450 mg/kg (Rat)	LD50 > 20 g/kg(Rabbit)	LC50 = 10.5 mg/L (Rat) 4 h

(b) skin corrosion/irritation; Category 2

(c) serious eye damage/irritation; Category 2

(d) respiratory or skin sensitization;

RespiratorySkin
Based on available data, the classification criteria are not met
Based on available data, the classification criteria are not met

(e) germ cell mutagenicity; Based on available data, the classification criteria are not met

(f) carcinogenicity; Category 2

The table below indicates whether each agency has listed any ingredient as a carcinogen

-	Component	Australia	New Zealand	New South	Western	IARC	EU	UK	Germany
				Wales	Australia				
	Chloroform	suspected carcinogen	Suspected human			Group 2B			
-			carcinogen						

(g) reproductive toxicity; Category 2

Reproductive Effects Experiments have shown reproductive toxicity effects on laboratory animals

Developmental EffectsDevelopmental effects have occurred in experimental animals

Teratogenicity Study result negative

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(h) STOT-single exposure; Category 3

Results / Target organs Central nervous system (CNS)

(i) STOT-repeated exposure; Category 1

Study result LOAEL = 15 mg/kg bw/day

 $NOAEC = 25 \text{ mg/m}^3$

Route of exposure Inhalation Liver, Kidney. **Target Organs**

(j) aspiration hazard; Based on available data, the classification criteria are not met

Tumorigenic effects have been reported in experimental animals. Other Adverse Effects

delayed

Symptoms / effects,both acute and Symptoms of overexposure are dizziness, headache, tiredness, nausea, unconsciousness, cessation of breathing: Causes central nervous system depression

Section 12 - Ecological Information

Ecotoxicity effects

Do not empty into drains. The product contains following substances which are hazardous for the environment. Contains a substance which is:. Harmful to aquatic organisms.

Component	Freshwater Fish	Water Flea	Freshwater Algae	Microtox
Chloroform	LC50: = 300 mg/L, 96h	EC50 = 28.9 mg/L/48h	EC50 = 560 mg/L/48h	Photobacterium
	static (Poecilia	_		phosphoreum: EC50 =
	reticulata)			520 mg/L/5 min
	LC50: = 18 mg/L, 96h			Photobacterium
	flow-through (Lepomis			phosphoreum: EC50 =
	macrochirus)			670 mg/L/15 min
	LC50: = 18 mg/L, 96h			Photobacterium
	flow-through			phosphoreum: EC50 =
	(Oncorhynchus mykiss)			670 mg/L/30min
	LC50: = 71 mg/L, 96h			
	flow-through			
	(Pimephales promelas)			

Persistence and Degradability

Persistence

Degradation in sewage

treatment plant **Bioaccumulative Potential** Product is biodegradable

Persistence is unlikely, based on information available.

Contains substances known to be hazardous to the environment or not degradable in waste water treatment plants.

Bioaccumulation is unlikely

Component	log Pow	Bioconcentration factor (BCF)		
Chloroform	2	1.4 - 13 dimensionless		
Mobility	The product contains volatile organic compounds (VOC) which will evaporate easily from all surfaces. Will likely be mobile in the environment due to its volatility. Disperses rapidly in air			
Endocrine Disruptor Information Persistent Organic Pollutant	This product does not contain any known or suspected endocrine disruptors 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

Waste from Residues/Unused **Products**

Do not allow into drains or watercourses or dispose of where ground or surface waters may be affected. Wastes, including emptied containers, are controlled wastes and should be disposed of in accordance with all federal, E.P.A., state and local regulations. Assure conformity with all applicable regulations.

Contaminated Packaging Dispose of this container to hazardous or special waste collection point.

Chemical wastes should be disposed through a licensed commercial waste collection Other Information

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service. Do not flush to sewer. Waste codes should be assigned by the user based on the application for which the product was used. Do not empty into drains.

Section 14 - Transport Information

IMDG/IMO

UN-No UN1888
Proper Shipping Name Chloroform
Hazard Class 6.1
Packing Group III

<u>ADG</u>

UN-No UN1888
Proper Shipping Name Chloroform
Hazard Class 6.1

Packing Group III

Component	Hazchem Code
Chloroform	2Z
67-66-3 (>99)	

<u>IATA</u>

UN-No UN1888
Proper Shipping Name Chloroform
Hazard Class 6.1
Packing Group III

Environmental hazards No hazards identified

Special Precautions No special precautions required

Additional information None known

Section 15 - Regulatory Information

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

National Regulations Australia

See section 8 for national exposure control parameters.

Standard for the Uniform Scheduling of Medicines and Poisons

Classified as a scheduled poison according to the Standard for Uniform Scheduling of Medicines and Poisons.

Component	Standard for the Uniform Scheduling of Medicines and Poisons
Chloroform - 67-66-3	Schedule 2 listed
	Schedule 4 listed - for use in anaesthesia
	Schedule 6 listed - except when included in Schedule 2 or 4;or in preparations containing <=10% of
	Chloroform

Australian Industrial Chemicals Introduction Scheme (AICIS)

1	Component	Australian Industrial	Additional information
		Chemicals Introduction	
		Scheme (AICIS)	

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Chloroform - 67-66-3	Present	-

Australian - Illicit Drug Precursors/Reagents Substance List

This product contains one or more substance(s) on the Illicit Drug Precursors/Reagents list. Verify requirements related to using, handling and storing these substances.

Chemicals of Security Concern

This product does not contain any substance(s) listed on the voluntary National Code of Practice for Chemicals of Security Concern

Component	Australian - Illicit Drug Precursors/Reagents Substance List	Chemicals of Security Concern
Chloroform - 67-66-3	Category 3	

Legend

Category 3 - Chemicals and apparatus that may be used in the illicit production of drugs. Purchases from this list should alert companies or organizations to seek further indicators of any suspicious orders or enquiries. No official reporting is required for items on this list unless considered warranted

National pollutant inventory Subject to reporting requirements

Component	National pollutant inventory
Chloroform - 67-66-3	10 tonne/yr. Threshold category 1

Prohibition or notification/licensing requirements

Shown below are details of specific prohibition/notifications or licencing requirements when they apply.

This product contains one or more substance(s) subject to Prohibition, Authorization or Restriction. Verify that requirements related to using, handling, and storing substances subject to prohibition, authorization or restriction are met.

Component		Australia	New South Wales	Western Australia	New Zealand
Chloroform - 67-66	-3 suspec	ted carcinogen			Suspected human
					carcinogen

International Inventories

	Component	AICS	NZIoC	EINECS	ELINCS	TSCA	DSL	NDSL	PICCS	ENCS	ISHL	IECSC	KECL
ſ	Chloroform	Х	Х	200-663-8	-	Х	Х	-	Х	Х	Х	Х	Х

Legend: X - Listed. '-' - Not Listed. KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

International Regulations

Ozone Depletion Potential This product does not contain any known or suspected substance

Persistent Organic Pollutant This product does not contain any known or suspected substance

Rotterdam Convention (PIC) Not applicable

Basel convention on the control of transboundary movements of hazardous wastes and their dispoal

Take note that wastes may be subject to export, import, or transit controls pursuant to the Basel convention and/or local regulations implementing the Basel convention.

Component	Basel Convention (Hazardous Waste)	Australian Hazardous Waste Act - Categories
·	,	of Wastes to Be Controlled

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Chloroform - 67-66-3 Annex I - Y45 Y45 except substances referenced in Anne	nex I
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Component	CAS No	OECD HPV	Restriction of Hazardous Substances (RoHS)	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements
Chloroform	67-66-3	Listed	Not applicable	Not applicable	Not applicable

Authorisation/Restrictions according to EU REACH

Component	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	,
Chloroform	-	Use restricted. See item 32. (see	-
		http://eur-lex.europa.eu/LexUriServ/L	
		exUriServ.do?uri=CELEX:32006R190	
		7:EN:NOT for restriction details)	

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

Section 16 - Other Information

Legend

AICS - Australian Inventory of Chemical Substances

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

IECSC - Chinese Inventory of Existing Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

TWA - Time Weighted Average

IARC - International Agency for Research on Cancer

ICAO/IATA - International Civil Aviation Organization/International Air **Transport Association**

MARPOL - International Convention for the Prevention of Pollution from Ships

NZS 5433:2012 - Transport of Dangerous Goods on Land

LD50 - Lethal Dose 50%

EC50 - Effective Concentration 50% WEL - Workplace Exposure Limit **DNEL** - Derived No Effect Level

POW - Partition coefficient Octanol:Water

vPvB - very Persistent, very Bioaccumulative

NZIoC - New Zealand Inventory of Chemicals

EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

ENCS - Japanese Existing and New Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

CAS - Chemical Abstracts Service

ACGIH - American Conference of Governmental Industrial Hygienists Predicted No Effect Concentration (PNEC)

IMO/IMDG - International Maritime Organization/International Maritime Dangerous Goods Code

ADG Australian Code for the Transport of Dangerous Goods by Road and Rail

OECD - Organisation for Economic Co-operation and Development

LC50 - Lethal Concentration 50% ATE - Acute Toxicity Estimate

RPE - Respiratory Protective Equipment NOEC - No Observed Effect Concentration

BCF - Bioconcentration factor

PBT - Persistent, Bioaccumulative, Toxic

Key literature references and sources for data

https://echa.europa.eu/information-on-chemicals

Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

Training Advice

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

Use of personal protective equipment, covering appropriate selection, compatibility, breakthrough thresholds, care, maintenance, fit and standards.

First aid for chemical exposure, including the use of eye wash and safety showers.

Chemical incident response training.

Fire prevention and fighting, identifying hazards and risks, static electricity, explosive atmospheres posed by vapours and dusts.

18-Nov-2022 **Revision Date Revision Summary** Not applicable.

FSUC4961 Version 2 18-Nov-2022 Page 10 / 11 This Safety Data Sheet (SDS) is prepared in accordance to and complies with the requirements of Safe Work Australia - Work Health and Safety Regulations (WHS Regulations).

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

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