

SAFETY DATA SHEET

United States

Section 1. Identification

Product name

**Protein precipitation buffer type 1; part of
'triplePrep™ Kit, 50 reactions'**

Catalogue Number

28942544



9 0 2 8 9 4 2 5 4 4

Other means of identification

Not available.

Product type

Liquid.

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

Identified uses

Use in laboratories

Supplier

Cytiva
Amersham Place
Little Chalfont
Buckinghamshire
HP7 9NA United Kingdom
+44 1494 508000

Cytiva USA
100 Results Way
Marlborough, MA 01752
1-800-526-3593

In case of emergency

INFOTRAC - 24 Hour number: 1-800-535-5053

Outside of the United States, call 24 Hour number: 001-352-323-3500 (Call Collect)

Section 2. Hazards identification

OSHA/HCS status

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture

SKIN CORROSION/IRRITATION - Category 1
SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 1
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) [Respiratory tract irritation] - Category 3
AQUATIC HAZARD (LONG-TERM) - Category 2

GHS label elements

Hazard pictograms



Signal word

Danger

Hazard statements

Causes severe skin burns and eye damage.
May cause respiratory irritation.
Toxic to aquatic life with long lasting effects.

Precautionary statements

Prevention

Wear protective gloves. Wear eye or face protection. Wear protective clothing. Use only outdoors or in a well-ventilated area. Avoid release to the environment. Avoid breathing vapor. Wash hands thoroughly after handling.



Response	Collect spillage. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or physician. IF SWALLOWED: Immediately call a POISON CENTER or physician. Rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. Wash contaminated clothing before reuse. Immediately call a POISON CENTER or physician. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or physician.
Storage	Store locked up.
Disposal	Dispose of contents and container in accordance with all local, regional, national and international regulations.
Hazards not otherwise classified	None known.
Hazards identified when used	No known significant effects or critical hazards.

Section 3. Composition/information on ingredients

Substance/mixture	Mixture		
Other means of identification	Not available.		
Ingredient name	Synonyms	%	Identifiers
TCA (ISO)	trichloroacetic acid; Acetic acid, 2,2,2-trichloro-; Acetic acid, trichloro-; Trichloroethanoic acid; TCA; Trichloroacetic acid, 30%; Aceto-caustin	≥5 - ≤10	CAS: 76-03-9

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact	Get medical attention immediately. Call a poison center or physician. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician.
Inhalation	Get medical attention immediately. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
Skin contact	Get medical attention immediately. Call a poison center or physician. Wash contaminated skin with soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician. Wash clothing before reuse. Clean shoes thoroughly before reuse.
Ingestion	Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Chemical burns must be treated promptly by a physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact	Causes serious eye damage.
Inhalation	May cause respiratory irritation. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
Skin contact	Causes severe burns.
Ingestion	May cause burns to mouth, throat and stomach.

Over-exposure signs/symptoms

Eye contact	Adverse symptoms may include the following: pain watering redness
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Inhalation	Adverse symptoms may include the following: respiratory tract irritation coughing
Skin contact	Adverse symptoms may include the following: pain or irritation redness blistering may occur
Ingestion	Adverse symptoms may include the following: stomach pains
Indication of immediate medical attention and special treatment needed, if necessary	
Notes to physician	In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
Specific treatments	No specific treatment.
Protection of first-aiders	No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media	Use an extinguishing agent suitable for the surrounding fire.
Unsuitable extinguishing media	None known.
Specific hazards arising from the chemical	In a fire or if heated, a pressure increase will occur and the container may burst. This material is toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
Hazardous thermal decomposition products	Decomposition products may include the following materials: carbon dioxide carbon monoxide halogenated compounds carbonyl halides metal oxide/oxides
Special protective actions for fire-fighters	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
Special protective equipment for fire-fighters	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
For emergency responders	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
Environmental precautions	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.

Methods and materials for containment and cleaning up

Small spill	Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
Large spill	Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). The spilled material may be neutralized with sodium carbonate, sodium bicarbonate or sodium hydroxide. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.



Section 7. Handling and storage

Precautions for safe handling

Protective measures	Put on appropriate personal protective equipment (see Section 8). Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Avoid release to the environment. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Keep away from alkalis. Empty containers retain product residue and can be hazardous. Do not reuse container.
Advice on general occupational hygiene	Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
Conditions for safe storage, including any incompatibilities	Store between the following temperatures: 20 to 25°C (68 to 77°F). Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Separate from alkalis. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name

TCA (ISO)

Exposure limits

NIOSH REL (United States, 10/2020)

TWA 10 hours: 1 ppm.

TWA 10 hours: 7 mg/m³.

CAL OSHA PEL (United States, 1/2025)

TWA 8 hours: 5 mg/m³.

TWA 8 hours: 1 ppm.

OSHA PEL 1989 (United States, 3/1989)

TWA 8 hours: 1 ppm.

TWA 8 hours: 7 mg/m³.

ACGIH TLV (United States, 1/2024) A3.

TWA 8 hours: 0.5 ppm.

Biological exposure indices

No exposure indices known.

Appropriate engineering controls

Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Environmental exposure controls

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection

Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles and/or face shield. If inhalation hazards exist, a full-face respirator may be required instead.

Skin protection

Hand protection

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection

Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection

Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.



Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Not available.

Conclusion/Summary [Product]

Not available.

Ingredient name

TCA (ISO)

Conclusion/Summary

ACGIH : Proven animal carcinogenic substance of potential relevance to humans.

Skin corrosion/irritation

Product/ingredient name

TCA (ISO)

Result

Human - Skin - Severe irritant

Duration of treatment/exposure: 24 hours

Amount/concentration applied: 35 pph

Conclusion/Summary [Product]

Corrosive to the skin.

Serious eye damage/eye irritation

Not available.

Conclusion/Summary [Product]

Corrosive to eyes.

Respiratory corrosion/irritation

Not available.

Conclusion/Summary [Product]

May cause respiratory irritation.

Respiratory or skin sensitization

Not available.

Skin

Conclusion/Summary [Product]

Not available.

Respiratory

Conclusion/Summary [Product]

Not available.

Germ cell mutagenicity

Not available.

Conclusion/Summary [Product]

Not available.

Carcinogenicity

Not available.

Conclusion/Summary [Product]

Not available.

Classification

Product/ingredient name

TCA (ISO)

OSHA

IARC

NTP

-

-

Reproductive toxicity



Not available.

Conclusion/Summary [Product] Not available.

Specific target organ toxicity (single exposure)

Product/ingredient name	Result
TCA (ISO)	-

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure Routes of entry anticipated: Oral, Dermal, Inhalation.

Potential acute health effects

Eye contact	Causes serious eye damage.
Inhalation	May cause respiratory irritation. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
Skin contact	Causes severe burns.
Ingestion	May cause burns to mouth, throat and stomach.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact	Adverse symptoms may include the following: pain watering redness
Inhalation	Adverse symptoms may include the following: respiratory tract irritation coughing
Skin contact	Adverse symptoms may include the following: pain or irritation redness blistering may occur
Ingestion	Adverse symptoms may include the following: stomach pains

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects	Corrosive to eyes and skin.
Potential delayed effects	Not available.

Long term exposure

Potential immediate effects	May cause respiratory irritation.
Potential delayed effects	Not available.

Potential chronic health effects

Not available.

Conclusion/Summary [Product] Not available.

General	No known significant effects or critical hazards.
Carcinogenicity	No known significant effects or critical hazards.
Mutagenicity	No known significant effects or critical hazards.
Reproductive toxicity	No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

N/A



Section 12. Ecological information

Toxicity

Product/ingredient name	Result
TCA (ISO)	Acute - EC50 - Fresh water Daphnia - Water flea - <i>Daphnia magna</i> - Neonate <u>Age:</u> <24 hours 146 mg/l [48 hours] <u>Effect:</u> Intoxication
	Acute - LC50 - Fresh water Fish - Trout Family - <i>Salmonidae</i> - Fry 1050 mg/l [96 hours] <u>Effect:</u> Mortality
	Acute - EC50 - Fresh water OECD Algae - Green algae - <i>Desmodesmus subspicatus</i> - Exponential growth phase 4.7 mg/l [72 hours] <u>Effect:</u> Population
	Chronic - NOEC - Fresh water OECD Algae - Green algae - <i>Desmodesmus subspicatus</i> - Exponential growth phase 3 mg/l [72 hours] <u>Effect:</u> Population
	Chronic - NOEC - Fresh water OECD Daphnia - Water flea - <i>Daphnia magna</i> <u>Age:</u> <24 hours 285 mg/l [21 days] <u>Effect:</u> Mortality
	Chronic - NOEC - Marine water OECD Fish - Sheepshead minnow - <i>Cyprinodon variegatus</i> - Embryo 235 mg/l [32 days] <u>Effect:</u> Mortality

Conclusion/Summary
[Product] Toxic to aquatic life with long lasting effects.

Persistence and degradability

Not available.

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
TCA (ISO)	-	-	Not readily

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
TCA (ISO)	1.33	1.7	Low

Mobility in soil

Soil/Water partition coefficient Not available.

Other adverse effects No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods

The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.



Section 14. Transport information

	DOT Classification	TDG Classification	Mexico Classification
UN number	UN2564	UN2564	UN2564
UN proper shipping name	Trichloroacetic acid solution (TCA (ISO), solution)	Trichloroacetic acid solution (TCA (ISO), solution)	Trichloroacetic acid solution (TCA (ISO), solution)
Transport hazard class(es)	8	8	8
	 	 	 
Packing group	II	II	II
Environmental hazards	Yes.	Yes.	Yes.
Additional information	-	-	-
	ADR/RID	IMDG	IATA
UN number	UN2564	UN2564	UN2564
UN proper shipping name	Trichloroacetic acid solution (TCA (ISO), solution)	Trichloroacetic acid solution (TCA (ISO), solution)	Trichloroacetic acid solution (TCA (ISO), solution)
Transport hazard class(es)	8	8	8
	 	 	
Packing group	II	II	II
Environmental hazards	Yes.	Yes.	No.
Additional information	<u>Tunnel code</u> E	-	-
Special precautions for user	Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.		
Transport in bulk according to IMO instruments	Not available.		
Proper shipping name	Not available.		

Section 15. Regulatory information

U.S. Federal regulations **TSCA 8(a) CDR Exempt/Partial exemption:** Not determined

TSCA 12(b) - Chemical export notification

Not applicable.

Clean Air Act Section 112(b) Hazardous Air Pollutants (HAPs)	Not listed
Clean Air Act Section 602 Class I Substances	Not listed
Clean Air Act Section 602 Class II Substances	Not listed
DEA List I Chemicals (Precursor Chemicals)	Not listed
DEA List II Chemicals (Essential Chemicals)	Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ Not applicable.

SARA 311/312	
Classification	SKIN CORROSION - Category 1 CARCINOGENICITY - Category 2 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3

Composition/information on ingredients

Name	%	Classification
TCA (ISO)	9	SKIN CORROSION - Category 1A EYE IRRITATION - Category 2A CARCINOGENICITY - Category 2 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3



State regulations

Massachusetts	The following components are listed: TRICHLOROACETIC ACID
New York	None of the components are listed.
New Jersey	The following components are listed: TRICHLOROACETIC ACID; ACETIC ACID, TRICHLORO-; TCA
Pennsylvania	The following components are listed: ACETIC ACID, TRICHLORO-

California Prop. 65

⚠ WARNING: This product contains a chemical known to the State of California to cause cancer.

Ingredient name	No significant risk level No.	Maximum acceptable dosage level No.
TCA (ISO)		

International regulations**Chemical Weapon Convention List Schedules I, II & III Chemicals**

Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

United States	All components are listed or exempted.
Canada inventory	All components are listed or exempted.

Section 16. Other information**National Fire Protection Association (U.S.A.)****Procedure used to derive the classification**

Classification	Justification
SKIN CORROSION - Category 1	On basis of test data
CARCINOGENICITY - Category 2	Calculation method
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3	Calculation method
AQUATIC HAZARD (LONG-TERM) - Category 2	Calculation method

History

Date of printing	2/19/2026
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Date of previous issue	5/13/2024
Version	7.02

Key to abbreviations

ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
N/A = Not available
UN = United Nations

References

Not available.



 Indicates information that has changed from previously issued version.**Notice to reader**

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