

A Geno Technology, Inc. (USA) brand name

Safety Data Sheet

Cat. # 786-887

Trichloroacetic acid (TCA) Solution, 10% (w/v)

Size: 1L





Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Date of issue: 05/08/2014 Revision date: 05/11/2017 Version: 7.1

SECTION 1: Identification

1.1. Identification

Product form : Mixture

Product name : TCA (Trichloroacetic acid) Solution, 10% w/v

 CAS-No.
 : 76-03-9

 Product code
 : 443A

 Formula
 : C2HCl3O2

Synonyms : aceto caustin, 5%≤conc<10%, aqueous solutions / amchem grass killer, 5%≤conc<10%,

aqueous solutions / konesta (=trichloroacetic acid), 5%≤conc<10%, aqueous solutions / TCA (=trichloroacetic acid), 5%≤conc<10%, aqueous solutions / trichloroacetic acid, 5%≤conc<10%,

aqueous solutions / trichloroethanoic acid, 5% < conc < 10%, aqueous solutions

BIG No : 06563

1.2. Recommended use and restrictions on use

No additional information available

1.3. Supplier

Geno Technology, Inc./ G-Biosciences 9800 Page Avenue Saint Louis, 63132-1429 - United States T 800-628-7730 - F 314-991-1504

technical@GBiosciences.com - www.GBiosciences.com

1.4. Emergency telephone number

Emergency number : Chemtrec 1-800-424-9300 (USA/Canada), +1-703-527-3887 (Intl)

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS US classification

Skin corrosion/irritation Category 1A

Precautionary statements (GHS US)

Carcinogenicity Category 2

Hazardous to the aquatic environment - Acute Hazard Category 2

Hazardous to the aquatic environment - Chronic Hazard Category 2

Full text of H statements : see section 16

H314 Causes severe skin burns and eye damage

H351 Suspected of causing cancer

H401 Toxic to aquatic life

H411 Toxic to aquatic life with long lasting effects

2.2. GHS Label elements, including precautionary statements

GHS US labeling

Hazard pictograms (GHS US)







Signal word (GHS US) : Danger

Hazard statements (GHS US) : H314 - Causes severe skin burns and eye damage

H351 - Suspected of causing cancer

H401 - Toxic to aquatic life

H411 - Toxic to aquatic life with long lasting effects

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 hands, forearms and face thoroughly after handling.

P273 - Avoid release to the environment.

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/shower

P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing

P305+P351+P338 - If in eves: 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.

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P310 - Immediately call a poison center or doctor

P321 - Specific treatment (see supplemental first aid instruction on this label)

P363 - Wash contaminated clothing before reuse.

P391 - Collect spillage. P405 - Store locked up.

P501 - Dispose of contents/container to hazardous or special waste collection point, in

accordance with local, regional, national and/or international regulation

2.3. Other hazards which do not result in classification

No additional information available

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/Information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Common Name (Synonyms)	Product identifier	%	GHS US classification
trichloroacetic acid	aceto caustin, 5%≤conc<10%, aqueous solutions / amchem grass killer, 5%≤conc<10%, aqueous solutions / konesta (=trichloroacetic acid), 5%≤conc<10%, aqueous solutions / TCA (=trichloroacetic acid), 5%≤conc<10%, aqueous solutions / trichloroacetic acid, 5%≤conc<10%, aqueous solutions / trichloroetanoic acid, 5%≤conc<10%, aqueous solutions / trichloroetanoic acid, 5%≤conc<10%, aqueous solutions	(CAS-No.) 76-03-9	10 - 50	Skin Corr. 1A, H314 Carc. 2, H351 Aquatic Acute 1, H400 Aquatic Chronic 1, H410

Full text of hazard classes and H-statements: see section 16

SECTION 4: First-aid measures

4.1.	Descri	ntion o	of first	aid	measures
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First-aid measures general

: Check the vital functions. Unconscious: maintain adequate airway and respiration. Respiratory arrest: artificial respiration or oxygen. Cardiac arrest: perform resuscitation. Victim conscious with laboured breathing: half-seated. Victim in shock: on his back with legs slightly raised. Vomiting: prevent asphyxia/aspiration pneumonia. Prevent cooling by covering the victim (no warming up). Keep watching the victim. Give psychological aid. Keep the victim calm, avoid physical strain. Depending on the victim's condition: doctor/hospital.

First-aid measures after inhalation

Remove the victim into fresh air. Immediately consult a doctor/medical service. Doctor: administration of corticoid spray.

First-aid measures after skin contact

Wash immediately with lots of water (15 minutes)/shower. Do not apply (chemical) neutralizing agents. Remove clothing while washing. Do not remove clothing if it sticks to the skin. Cover wounds with sterile bandage. Consult a doctor/medical service. If burned surface > 10%: take victim to hospital.

First-aid measures after eye contact

Rinse immediately with plenty of water for 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Do not apply neutralizing agents. Take victim to an ophthalmologist.

First-aid measures after ingestion

Rinse mouth with water. Immediately after ingestion: give lots of water to drink. Do not induce vomiting. Immediately consult a doctor/medical service. Call Poison Information Centre (www.big.be/antigif.htm). Take the container/vomit to the doctor/hospital. Do not give chemical antidote. Ingestion of large quantities: immediately to hospital.

4.2. Most important symptoms and effects (acute and delayed)

Potential Adverse human health effects and symptoms

: Non-toxic if swallowed (LD50 oral, rat > 5000 mg/kg). Causes severe skin burns. Causes serious eye damage.

Symptoms/effects after inhalation

EXPOSURE TO HIGH CONCENTRATIONS: Corrosion of the upper respiratory tract.
 Respiratory difficulties. FOLLOWING SYMPTOMS MAY APPEAR LATER: Risk of lung oedema

Symptoms/effects after skin contact

: Caustic burns/corrosion of the skin. Slow-healing wounds.

Symptoms/effects after eye contact

Corrosion of the eye tissue.

Symptoms/effects after ingestion : Nausea. Vomiting. Possible esophageal perforation. Burns to the gastric/intestinal mucosa.

4.3. Immediate medical attention and special treatment, if necessary

Treat symptomatically.

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SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media : Water spray. Dry powder. Foam. Carbon dioxide.

5.2. Specific hazards arising from the chemical

Fire hazard : DIRECT FIRE HAZARD: Non combustible. INDIRECT FIRE HAZARD: Reactions involving a

fire hazard: see "Reactivity Hazard".

Explosion hazard : INDIRECT EXPLOSION HAZARD: Reactions with explosion hazards: see "Reactivity Hazard".

5.3. Special protective equipment and precautions for fire-fighters

Precautionary measures fire : Exposure to fire/heat: keep upwind. Exposure to fire/heat: consider evacuation. Exposure to

fire/heat: seal off low-lying areas. Exposure to fire/heat: have neighbourhood close doors and

windows.

Firefighting instructions : Cool tanks/drums with water spray/remove them into safety. Dilute toxic gases with water

spray. Take account of toxic fire-fighting water. Use water moderately and if possible collect or

contain it.

Protection during firefighting : Heat/fire exposure: compressed air/oxygen apparatus.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Protective equipment : Gloves. Face-shield. Corrosion-proof suit. Large spills/in enclosed spaces: compressed air

apparatus. Large spills/in enclosed spaces: gas-tight suit.

Emergency procedures : Mark the danger area. No naked flames. Corrosion-proof appliances. Wash contaminated

clothes. Large spills/in confined spaces: consider evacuation. In case of hazardous reactions:

keep upwind. In case of reactivity hazard: consider evacuation.

6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. For further information

refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Prevent soil and water pollution. Prevent spreading in sewers.

6.3. Methods and material for containment and cleaning up

For containment : Contain released product, pump into suitable containers. Plug the leak, cut off the supply. Dam

up the liquid spill. Hazardous reaction: measure explosive gas-air mixture. Reaction: dilute combustible gas/vapour with water curtain. Take account of toxic/corrosive precipitation water.

Heat exposure: dilute toxic gas/vapour with water spray.

Methods for cleaning up : Take up liquid spill into absorbent material, e.g.: dry sand/earth or powdered limestone. Scoop

absorbed substance into closing containers. Carefully collect the spill/leftovers.

Damaged/cooled tanks must be emptied. Clean contaminated surfaces with an excess of

water. Take collected spill to manufacturer/competent authority. Wash clothing and equipment

after handling.

Other information : Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Hygiene measures

Precautions for safe handling : Keep away from naked flames/heat. Measure the concentration in the air regularly. Carry

operations in the open/under local exhaust/ventilation or with respiratory protection. Comply with the legal requirements. Remove contaminated clothing immediately. Clean contaminated clothing. Use corrosionproof equipment. Thoroughly clean/dry the installation before use. Do

Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product.

not discharge the waste into the drain. Keep container tightly closed.

Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store locked up. Store in a well-ventilated place. Keep cool. Keep container tightly closed.

Heat-ignition : KEEP SUBSTANCE AWAY FROM: heat sources.

Information on mixed storage : KEEP SUBSTANCE AWAY FROM: (strong) bases. metals.

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Storage area : Ventilation at floor level. Keep locked up. Provide for a tub to collect spills. Unauthorized

persons are not admitted.

Special rules on packaging : SPECIAL REQUIREMENTS: closing. corrosion-proof. clean. correctly labelled. meet the legal

requirements. Secure fragile packagings in solid containers.

Packaging materials : SUITABLE MATERIAL: polyethylene. polypropylene. glass. PVC. Teflon. MATERIAL TO

AVOID: aluminium. zinc.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

TCA (Trichloroacetic acid) Solution, 10% w/v (76-03-9)

No additional information available

trichloroacetic acid (76-03-9)

USA - ACGIH - Occupational Exposure Limits

ACGIH TWA (ppm) 0.5 ppm

8.2. Appropriate engineering controls

Appropriate engineering controls : Ensure good ventilation of the work station.

Environmental exposure controls : Avoid release to the environment.

8.3. Individual protection measures/Personal protective equipment

Materials for protective clothing:

GIVE GOOD RESISTANCE: nitrile rubber. GIVE LESS RESISTANCE: polyethylene

Hand protection:

Gloves

Eye protection:

Face shield

Molecular mass

Skin and body protection:

Corrosion-proof clothing

Respiratory protection:

Full face mask with filter type A at conc. in air > exposure limit

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state : Liquid
Appearance : Liquid.
Color : Colourless

Odor : Irritating/pungent odour Odor threshold : No data available рΗ No data available : Not applicable Melting point Freezing point : No data available : No data available Boiling point Flash point : Not applicable Relative evaporation rate (butyl acetate=1) : No data available Flammability (solid, gas) : Not applicable. Vapor pressure : No data available Relative vapor density at 20 °C : No data available Relative density : No data available

Solubility : Soluble in ethanol. Soluble in ether.

: 163.39 g/mol

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Log Pow : 1.33 (Experimental value)

Auto-ignition temperature : No data available
Decomposition temperature : No data available
Viscosity, kinematic : No data available
Viscosity, dynamic : No data available
Explosion limits : No data available
Explosive properties : No data available
Oxidizing properties : No data available

9.2. Other information

VOC content : 5 - 10 %

Other properties : Gas/vapour heavier than air at 20°C. Physical properties depending on the concentration. Acid

reaction.

SECTION 10: Stability and reactivity

10.1. Reactivity

Reacts violently with (some) bases: release of heat.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

10.5. Incompatible materials

No additional information available

10.6. Hazardous decomposition products

Hazardous decomposition products.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral) : Not classified
Acute toxicity (dermal) : Not classified
Acute toxicity (inhalation) : Not classified

TCA (Trichloroacetic acid) Solution, 10% w/v (76-03-9)			
LD50 oral rat > 5000 mg/kg (Rat, Oral)			
trichloroacetic acid (76-03-9)			
LD50 oral rat > 5000 mg/kg (Rat, Oral)			

Skin corrosion/irritation : Causes severe skin burns and eye damage.

Serious eye damage/irritation : Eye damage, category 1, implicit

Respiratory or skin sensitization : Not classified Germ cell mutagenicity : Not classified

Carcinogenicity : Suspected of causing cancer.

trichloroacetic acid (76-03-9)		
IARC group		2B - Possibly carcinogenic to humans

Reproductive toxicity : Not classified

Specific target organ toxicity – single exposure : Not classified

Specific target organ toxicity - repeated : Not classified

exposure

Aspiration hazard : Not classified
Viscosity, kinematic : No data available

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Potential Adverse human health effects and symptoms	:	Non-toxic if swallowed (LD50 oral, rat > 5000 mg/kg). Causes severe skin burns. Causes serious eye damage.
Symptoms/effects after inhalation	:	EXPOSURE TO HIGH CONCENTRATIONS: Corrosion of the upper respiratory tract. Respiratory difficulties. FOLLOWING SYMPTOMS MAY APPEAR LATER: Risk of lung oedema.
Symptoms/effects after skin contact	:	Caustic burns/corrosion of the skin. Slow-healing wounds.

Symptoms/effects after eye contact : Corrosion of the eye tissue.

Symptoms/effects after ingestion : Nausea. Vomiting. Possible esophageal perforation. Burns to the gastric/intestinal mucosa.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : Dangerous for the environment.

Ecology - air : Not classified as dangerous for the ozone layer (Regulation (EC) No 1005/2009).

Ecology - water : Toxic to aquatic organisms. Groundwater pollutant. Water pollutant (surface water). pH shift.

trichloroacetic acid (76-03-9)	
LC50 fish 1	2000 mg/l (Equivalent or similar to OECD 203, 96 h, Pimephales promelas, Static system, Fresh water, Weight of evidence)
EC50 Daphnia 1	2000 mg/l (Equivalent or similar to OECD 202, 48 h, Daphnia magna, Static system, Fresh water, Experimental value, Locomotor effect)
ErC50 (algae)	0.46 mg/l (Other, 14 day(s), Chlorella sp., Static system, Fresh water, Experimental value, Nominal concentration)

12.2. Persistence and degradability

TCA (Trichloroacetic acid) Solution, 10% w/v (76-03-9)		
Persistence and degradability Contains non readily biodegradable component(s).		
trichloroacetic acid (76-03-9)		
Persistence and degradability Contains non readily biodegradable component(s).		

12.3. Bioaccumulative potential

TCA (Trichloroacetic acid) Solution, 10% w/v (76-03-9)		
Log Pow	1.33 (Experimental value)	
Bioaccumulative potential	Low potential for bioaccumulation (Log Kow < 4).	
trichloroacetic acid (76-03-9)		
BCF fish 1	0.4 - 1.7 mg/l (6 week(s), Cyprinus carpio, Fresh water, Experimental value)	
Log Pow	1.33 (Experimental value)	
Bioaccumulative potential	Low potential for bioaccumulation (Log Kow < 4).	

12.4. Mobility in soil

TCA (Trichloroacetic acid) Solution, 10% w/v (76-03-9)		
Ecology - soil No (test)data on mobility of the components available.		
trichloroacetic acid (76-03-9)		
Surface tension	0.278 N/m (80 °C)	
Log Koc	0 (log Koc, Other, Experimental value)	
Ecology - soil	Highly mobile in soil.	

12.5. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Disposal methods

Waste treatment methods : Waste treatment methods.

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Product/Packaging disposal recommendations

: Avoid any discharge of the product into waste water. Remove waste in accordance with local and/or national regulations. Hazardous waste shall not be mixed together with other waste. Different types of hazardous waste shall not be mixed together if this may entail a risk of pollution or create problems for the further management of the waste. Hazardous waste shall be managed responsibly. All entities that store, transport or handle hazardous waste shall take the necessary measures to prevent risks of pollution or damage to people or animals. Remove to an incinerator for chlorinated waste materials with energy recovery.

Additional information

: Hazardous waste according to Directive 2008/98/EC, as amended by Regulation (EU) No 1357/2014 and Regulation (EU) No 2017/997.

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT

Transport document description : UN2564 Trichloroacetic acid, solution, 8, III

UN-No.(DOT) : UN256

Proper Shipping Name (DOT) : Trichloroacetic acid, solution

Class (DOT) : 8 - Class 8 - Corrosive material 49 CFR 173.136

Packing group (DOT) : III - Minor Danger Hazard labels (DOT) : 8 - Corrosive



Dangerous for the environment : Yes
Marine pollutant : Yes



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DOT Packaging Non Bulk (49 CFR 173.xxx) DOT Packaging Bulk (49 CFR 173.xxx) DOT Special Provisions (49 CFR 172.102)

: A3 - For combination packaging, if glass inner packaging (including ampoules) are used, they must be packed with absorbent material in tightly closed metal receptacles before packing in outer packaging.

A6 - For combination packaging, if plastic inner packaging are used, they must be packed in tightly closed metal receptacles before packing in outer packaging.

A7 - Steel packaging must be corrosion-resistant or have protection against corrosion. IB3 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1 and 31HA2, 31HB2, 31HN2, 31HD2 and 31HH2). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized, except for UN2672 (also see Special Provision IP8 in Table 2 for UN2672).

N34 - Aluminum construction materials are not authorized for any part of a packaging which is normally in contact with the hazardous material.

T4 - 2.65 178.274(d)(2) Normal..... 178.275(d)(3)

TP1 - The maximum degree of filling must not exceed the degree of filling determined by the following: Degree of filling = 97 / 1 + a (tr - tf) Where: tr is the maximum mean bulk temperature during transport, and tf is the temperature in degrees celsius of the liquid during filling.

DOT Packaging Exceptions (49 CFR 173.xxx) : 154
DOT Quantity Limitations Passenger aircraft/rail : 5 L
(49 CFR 173.27)

DOT Quantity Limitations Cargo aircraft only (49 : 60 L

CFR 175.75)

DOT Vessel Stowage Location

B - (i) The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel carrying a number of passengers limited to not more than the larger of 25 passengers, or one passenger per each 3 m of overall vessel length; and (ii) "On deck only" on

passenger vessels in which the number of passengers specified in paragraph (k)(2)(i) of this section is exceeded.

DOT Vessel Stowage Other : 8 - Glass carboys not permitted on passenger vessels

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Emergency Response Guide (ERG) Number : 153

Other information : No supplementary information available.

Transportation of Dangerous Goods

Transport by sea

Not regulated

Air transport

Not regulated

SECTION 15: Regulatory information

15.1. US Federal regulations

trichloroacetic acid (76-03-9)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. International regulations

CANADA

trichloroacetic acid (76-03-9)

Listed on the Canadian DSL (Domestic Substances List)

EU-Regulations

National regulations

trichloroacetic acid (76-03-9)

Listed on IARC (International Agency for Research on Cancer)

15.3. US State regulations

trichloroacetic a					
U.S California - Proposition 65 - Carcinogens List	U.S California - Proposition 65 - Developmental Toxicity	U.S California - Proposition 65 - Reproductive Toxicity - Female	U.S California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)	Maximum allowable dose level (MADL)
Yes	No	No	No		

SECTION 16: Other information

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Revision date : 05/11/2017

Full text of H-phrases:

H314	Causes severe skin burns and eye damage	
H351	Suspected of causing cancer	
H400	ery toxic to aquatic life	
H401	oxic to aquatic life	
H410	Very toxic to aquatic life with long lasting effects	
H411	Toxic to aquatic life with long lasting effects	

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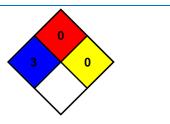
NFPA health hazard : 3 - Materials that, under emergency conditions, can cause serious or permanent injury.

NFPA fire hazard : 0 - Materials that will not burn under typical fire conditions, including intrinsically noncombustible materials such as

concrete, stone, and sand.

: 0 - Material that in themselves are normally stable, even

under fire conditions.



SDS US (GHS HazCom 2012)

NFPA reactivity

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

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