

A Geno Technology, Inc. (USA) brand name

Safety Data Sheet

Cat. # 786-538

b Solution [3X] (3M [(CH3)4N]Cl, 50mM Tris.HCl, pH 8.0, 1mM EDTA, pH 8.0, 0.7

Size: 1 Liter





Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830 Date of issue: 5/24/2013 Revision date: 5/11/2017 Version: 1.1

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

1.1. Product identifier

Product form : Mixture

Product name : TMAC Hyb Solution

Product code : 086T Product group : Blend

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

1.2.1. Relevant identified uses

Main use category : Research purposes

Use of the substance/mixture : Research and development

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Geno Technology, Inc./ G-Biosciences 9800 Page Avenue 63132-1429 Saint Louis - 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)

Country	Organisation/Company	Address	Emergency number	Comment
United Kingdom	National Poisons Information Service (Belfast Centre) Royal Victoria Hospital	Grosvenor Road BT12 6BA Belfast	0344 892 0111	
United Kingdom	National Poisons Information Service (Birmingham Centre) City Hospital	Dudley Road B18 7QH Birmingham	0344 892 0111	
United Kingdom	National Poisons Information Service (Cardiff Centre) Gwenwyn Ward, Llandough Hospital	Penarth CF64 2XX Cardiff	0344 892 0111	
United Kingdom	National Poisons Information Service Edinburgh Royal Infirmary of Edinburgh	Little France Crescent EH16 4SA Edinburgh	0344 892 0111	
United Kingdom	Guy's & St Thomas' Poisons Unit Medical Toxicology Unit, Guy's & St Thomas' Hospital Trust	Avonley Road SE14 5ER London	+44 20 7188 7188	
United Kingdom	National Poisons Information Service (Newcastle Centre) Regional Drugs and Therapeutics Centre, Wolfson Unit	Claremont Place Newcastle-upon-Tyne NE1 4LP Newcastle	0344 892 0111	

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Acute toxicity (oral), Category 3

Skin corrosion/irritation, Category 2

H315

Serious eye damage/eye irritation, Category 2

H319

Specific target organ toxicity — Single exposure, Category 3,

Respiratory tract irritation

Full text of H statements : see section 16

Adverse physicochemical, human health and environmental effects

Toxic if swallowed. May cause respiratory irritation. Causes skin irritation. Causes serious eye irritation.

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2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP)



GHS06

CLP Signal word : Danger

: H301 - Toxic if swallowed. Hazard statements (CLP)

H315 - Causes skin irritation. H319 - Causes serious eye irritation.

H335 - May cause respiratory irritation.

: P261 - Avoid breathing dust/fume/gas/mist/vapours/spray. Precautionary statements (CLP)

P264 - Wash hands, forearms and face 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 protective gloves/protective clothing/eye protection/face protection. P301+P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor.

P302+P352 - IF ON SKIN: Wash with plenty of 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. P312 - Call a POISON CENTRE or doctor if you feel unwell.

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

P330 - Rinse mouth.

P332+P313 - If skin irritation occurs: Get medical advice/attention. P337+P313 - If eye irritation persists: 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 hazardous or special waste collection point, in

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

2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Deionized water	(CAS-No.) 7732-18-5	50 - 80	Not classified
tetramethylammonium chloride	(CAS-No.) 75-57-0 (EC-No.) 200-880-8	10 - 50	Acute Tox. 2 (Oral), H300 Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335
tris(hydroxymethyl)aminomethane	(CAS-No.) 77-86-1 (EC-No.) 201-064-4	0.5 - 2	Not classified
sodium dodecyl sulphate	(CAS-No.) 151-21-3 (EC-No.) 205-788-1	0.05 - 0.5	Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Dermal), H312 Skin Irrit. 2, H315 Eye Irrit. 2, H319
disodium dihydrogen ethylenediaminetetraacetate, dihydrate	(CAS-No.) 6381-92-6 (EC-No.) 205-358-3	< 0.05	Not classified

Full text of H-statements: see section 16

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SECTION 4: First aid measures

4.1. Description of first aid measures

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 First-aid measures after skin contact

: Remove the victim into fresh air. Respiratory problems: consult a doctor/medical service. : Wash immediately with lots of water. Soap may be used. Remove clothing while washing. Take victim to a doctor if irritation persists

First-aid measures after eye contact

Rinse with water. Remove contact lenses, if present and easy to do. Continue rinsing. Do not apply neutralizing agents. Take victim to an ophthalmologist if irritation persists.

First-aid measures after ingestion

: Rinse mouth with water. Give nothing to drink. Victim is fully conscious: immediately induce vomiting. Induce vomiting by giving a 0.9 % saline solution. Immediately consult a doctor/medical service. Call Poison Information Centre (www.big.be/antigif.htm). Ingestion of large quantities: immediately to hospital. Take the container/vomit to the doctor/hospital.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/effects after inhalation

: Dry/sore throat. Coughing. Irritation of the respiratory tract. Irritation of the nasal mucous membranes. Headache. Respiratory difficulties.

Symptoms/effects after skin contact

: Red skin. Tingling/irritation of the skin.

Symptoms/effects after eye contact

: Redness of the eye tissue. Irritation of the eye tissue. Visual disturbances.

Symptoms/effects after ingestion

: Dizziness. Vomiting. Nausea. Dilation of the blood vessels.

Chronic symptoms

: ON CONTINUOUS/REPEATED EXPOSURE/CONTACT: Impairment of the nervous system.

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

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

: Adapt extinguishing media to the environment for surrounding fires. Suitable extinguishing media

5.2. Special hazards arising from the substance or mixture

: DIRECT FIRE HAZARD: Non combustible. Fire hazard

Hazardous decomposition products in case of fire : Toxic fumes may be released.

5.3. Advice for firefighters

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

to fire/heat: have neighbourhood close doors and windows.

: Dilute toxic gases with water spray. Take account of toxic fire-fighting water. Use water Firefighting instructions

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

: Gloves. Face-shield. Protective clothing. Dust cloud production: compressed air/oxygen Protective equipment

apparatus. Dust cloud production: dust-tight suit.

: Mark the danger area. Prevent dust cloud formation. No naked flames. Wash contaminated **Emergency procedures**

clothes.

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 solid spill.

: Stop dust cloud by covering with sand/earth. Scoop solid spill into closing containers. Methods for cleaning up

Carefully collect the spill/leftovers. Take collected spill to manufacturer/competent authority. Clean contaminated surfaces with an excess of water. 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.

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SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed

: Pulverization rapidly increases toxic concentration.

Precautions for safe handling : Avoid raising dust. 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. Thoroughly clean/dry the installation before use.

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

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

product. 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 container tightly closed. Keep cool.

Storage temperature : RT

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

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DNEL/DMEL (Workers)

Long-term - systemic effects, dermal	69 µg/kg dw
Long-term - systemic effects, inhalation	0.49 mg/m ³

PNEC (Water)

PNEC aqua (freshwater)	0.6 µg/l
PNEC aqua (marine water)	0.06 µg/l

PNEC (Sediment)

PNEC sediment (freshwater)	35 μg/kg dw
PNEC sediment (marine water)	3.5 µg/kg dw

PNEC (Soil)

PNEC soil	6.6 µg/kg dw

PNEC (STP)

PNEC sewage treatment plant 6 mg/l

8.2. Exposure controls

Appropriate engineering controls:

Ensure good ventilation of the work station.

Materials for protective clothing:

GIVE GOOD RESISTANCE: butyl rubber. PVC

Hand protection:

Gloves

Eye protection:

Face shield. In case of dust production: protective goggles

Skin and body protection:

Protective clothing. In case of dust production: head/neck protection. In case of dust production: dustproof clothing

Respiratory protection:

Dust production: dust mask with filter type P3. High dust production: self-contained breathing apparatus

Environmental exposure controls:

Avoid release to the environment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state : Liquid

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Colour : Colorless to slightly yellow.

Odour : Ammonia odour.
Odour threshold : No data available

pH : 8

Relative evaporation rate (butylacetate=1) : No data available Melting point : Not applicable : No data available Freezing point Boiling point : No data available Flash point : No data available Auto-ignition temperature · No data available Decomposition temperature : No data available Flammability (solid, gas) : Not applicable Vapour pressure : No data available Relative vapour density at 20 °C : No data available Relative density : No data available · No data available Solubility Log Pow : No data available Viscosity, kinematic : No data available Viscosity, dynamic No data available Explosive properties : No data available Oxidising properties : No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

Explosive limits

Reacts violently with (strong) oxidizers.

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) : Toxic if swallowed.

Acute toxicity (dermal) : Not classified

Acute toxicity (inhalation) : Not classified

TMAC Hyb Solution

ATE CLP (oral) 152.068 mg/kg bodyweight

tris(hydroxymethyl)aminomethane (77-86-1)

	> 5000 mg/kg bodyweight (OECD 425: Acute Oral Toxicity: Up-and-Down Procedure, Rat, Female, Experimental value, Oral, 14 day(s))
	> 5000 mg/kg bodyweight (OECD 402: Acute Dermal Toxicity, 24 h, Rat, Male / female, Experimental value, Dermal)

: No data available

sodium dodecyl sulphate (151-21-3)

LD50 oral rat	1200 mg/kg bodyweight (OECD 401: Acute Oral Toxicity, Rat, Male / female, Experimental value, Oral, 14 day(s))
LD50 dermal rat	< 2000 mg/kg (Rat: Literature study)

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LD50 dermal rabbit	> 2000 mg/kg bodyweight (Equivalent or similar to OECD 402, 24 h, Rabbit, Male / female, Read-across, Dermal, 14 day(s))
	iemaie, Read-across, Dermai, 14 day(s))

disodium dihydrogen ethylenediaminetetraacetate, dihydrate (6381-92-6)	
LD50 oral rat	> 2000 mg/kg (Rat)
LD50 dermal rabbit	> 5000 mg/kg (Rabbit)

tetramethylammonium chloride (75-57-0)		
LD50 oral rat	50 mg/kg (Rat, Oral)	
Skin corrosion/irritation	: Causes skin irritation.	
	pH: 8	
Serious eye damage/irritation	: Causes serious eye irritation.	
	pH: 8	
Respiratory or skin sensitisation	: Not classified	
Germ cell mutagenicity	: Not classified	
Carcinogenicity	: Not classified	
Reproductive toxicity	: Not classified	
STOT-single exposure	: May cause respiratory irritation.	
STOT-repeated exposure	: Not classified	

SECTION 12: Ecological information

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Aspiration hazard

Ecology - general : The product is not considered harmful to aquatic organisms nor to cause long-term

: Not classified

adverse effects in the environment.

Acute aquatic toxicity : Not classified : Not classified Chronic aquatic toxicity

tris(hydroxymethyl)aminomethane (77-86-1)	
EC50 Daphnia 1	> 980 mg/l (OECD 202: Daphnia sp. Acute Immobilisation Test, 48 h, Daphnia magna, Static system, Fresh water, Experimental value, GLP)
EC50 72h algae (1)	397 mg/l (Equivalent or similar to OECD 201, Pseudokirchneriella subcapitata, Static system, Fresh water, Experimental value, Growth rate)

sodium dodecyl sulphate (151-21-3)	
EC50 72h algae (1)	> 120 mg/l (DIN 38412-9, Scenedesmus subspicatus, Static system, Fresh water, Experimental value, Growth rate)
EC50 72h algae (2)	53 mg/l (DIN 38412-9, Scenedesmus subspicatus, Static system, Fresh water, Experimental value, Biomass)

disodium dihydrogen ethylenediaminetetraacetate, dihydrate (6381-92-6)	
LC50 fish 1	320 mg/l (LC50; 96 h)
EC50 Daphnia 1	> 100 mg/l (EC50; 24 h)

tetramethylammonium chloride (75-57-0)		
LC50 fish 1 462 mg/l (96 h, Pimephales promelas)		
12.2. Persistence and degradability		
tris(hydroxymethyl)aminomethane (77-86-1)		
Persistence and degradability Readily biodegradable in water.		

sodium dodecyl sulphate (151-21-3)	
Persistence and degradability	Readily biodegradable in water.

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disodium dihydrogen ethylenediaminetetraacetate, dihydrate (6381-92-6)	
Persistence and degradability	Not readily biodegradable in water.
Biochemical oxygen demand (BOD)	0.01 g O ₂ /g substance

tetramethylammonium chloride (75-57-0)		
Persistence and degradability	Biodegradable in water.	
12.3. Bioaccumulative potential		
tris(hydroxymethyl)aminomethane (77-86-1)		
Log Pow	-2.31 (Experimental value, OECD 107: Partition Coefficient (n-octanol/water): Shake Flask Method, 20 °C)	
Bioaccumulative potential	Not bioaccumulative.	

sodium dodecyl sulphate (151-21-3)		
BCF fish 1	3.9 - 5.3 (72 h, Cyprinus carpio)	
BCF fish 2	7.15 (Pisces, Chronic)	
Log Pow	<= -2.03 (Calculated, OECD 107: Partition Coefficient (n-octanol/water): Shake Flask Method, 20 °C)	
Bioaccumulative potential	Not bioaccumulative.	

disodium dihydrogen ethylenediaminetetraacetate, dihydrate (6381-92-6)	
Bioaccumulative potential	No bioaccumulation data available.

tetramethylammonium chloride (75-57-0)		
Bioaccumulative potential	Bioaccumulation: not applicable.	
12.4. Mobility in soil		
tris(hydroxymethyl)aminomethane (77-86-1)		
Log Koc	1.87 (log Koc, QSAR)	
Ecology - soil	Highly mobile in soil.	

sodium dodecyl sulphate (151-21-3)	
Surface tension	0.0252 N/m (23 °C, 1 g/l, EU Method A.5: Surface tension)
Log Koc	1.545 (log Koc, SRC PCKOCWIN v2.0, Experimental value)
Ecology - soil	Highly mobile in soil.

	2.5. Results of PBT and VPVB assessment		
	Component		
	tris(hydroxymethyl)aminomethane (77-86-1)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII	
	sodium dodecyl sulphate (151-21-3)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII	

12.6. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste treatment methods

: Waste treatment methods.

Product/Packaging disposal recommendations

: 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. Dissolve or mix with a combustible solvent.

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Additional information : Hazardous waste according to Directive 2008/98/EC, as amended by Regulation (EU) No

1357/2014 and Regulation (EU) No 2017/997.

European List of Waste (LoW) code : 15 01 10* - packaging containing residues of or contaminated by dangerous substances

16 08 07* - spent catalysts contaminated with dangerous substances

SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

14.1. UN number

UN-No. (ADR) : Not applicable
UN-No. (IMDG) : Not regulated
UN-No. (IATA) : Not regulated
UN-No. (ADN) : Not applicable
UN-No. (RID) : Not applicable

14.2. UN proper shipping name

Proper Shipping Name (ADR) : Not applicable
Proper Shipping Name (IMDG) : Not regulated
Proper Shipping Name (IATA) : Not regulated
Proper Shipping Name (ADN) : Not applicable
Proper Shipping Name (RID) : Not applicable

14.3. Transport hazard class(es)

ADR

Transport hazard class(es) (ADR) : Not applicable

MDG

Transport hazard class(es) (IMDG) : Not regulated

IATA

Transport hazard class(es) (IATA) : Not regulated

ADN

Transport hazard class(es) (ADN) : Not applicable

RID

Transport hazard class(es) (RID) : 6.1

14.4. Packing group

Packing group (ADR) : II

Packing group (IMDG): Not regulatedPacking group (IATA): Not regulatedPacking group (ADN): Not applicablePacking group (RID): Not applicable

14.5. Environmental hazards

Dangerous for the environment : No Marine pollutant : No

Other information : No supplementary information available

14.6. Special precautions for user

Overland transport

No data available

Transport by sea

Not regulated

Air transport

Not regulated

Inland waterway transport

No data available

Rail transport

No data available

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

Contains no REACH substances with Annex XVII restrictions

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Contains no substance on the REACH candidate list

Contains no REACH Annex XIV substances

Contains no substance subject to REGULATION (EU) No 649/2012 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 4 July 2012 concerning the export and import of hazardous chemicals.

Substance(s) are not subject to Regulation (EC) No 850/2004 of the European Parliament and of the Council of 29 April 2004 on persistent organic pollutants and amending Directive 79/117/EEC.

15.1.2. National regulations

No additional information available

15.2. Chemical safety assessment

No chemical safety assessment has been carried out

SECTION 16: Other information

Full text of H- and EUH-statements:	
Acute Tox. 2 (Oral)	Acute toxicity (oral), Category 2
Acute Tox. 4 (Dermal)	Acute toxicity (dermal), Category 4
Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
Eye Irrit. 2	Serious eye damage/eye irritation, Category 2
Skin Irrit. 2	Skin corrosion/irritation, Category 2
STOT SE 3	Specific target organ toxicity — Single exposure, Category 3, Respiratory tract irritation
H300	Fatal if swallowed.
H301	Toxic if swallowed.
H302	Harmful if swallowed.
H312	Harmful in contact with skin.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.

Safety Data Sheet applicable for regions

: GB - United Kingdom

SDS EU (REACH Annex II)

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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