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Safety Data Sheet
according to Regulation (EC) No. 1907/2006. COMMISSION REGULATION (EU) 2020/878 amending Annex II to Regulation (EC) No 1907/2006

Printing date 01.11.2022 Revision: 08.08.2023

1 Identification of substance
Product details
Trade name: Nuclefy Genomic DNA Purification Kit - Lysis buffer

Article number: Part of PCCSKU16073

Details of supplier of the MSDS/Manufacturer/Supplier:

Procomcure Biotech GmbH, Breitwies 1, 5303 Thalgau, Austria; FN 289033z

2 Hazards identification
2.1. Classification of the substance or mixture
Classification according to regulation (EC) No 11272/2008 (CLP) and amendments

H302 – Acute toxicity, Oral (category 4). H302 – Acute toxicity, Inhalation (category 4). H312 – Acute toxicity, dermal (category 4). H314 – Skin corrosion (sub-category 1C). H318 – Serious eye damage (category 1). H412 – Long-term (chronic) aquatic hazard (category 3).

2.2. Label elements
Hazard pictograms

Signal Word

Danger

Hazard Statements

H312	Harmful in contact with skin.
H332	Harmful if inhaled.
H302	Harmful if swallowed.
H317	May cause an allergic skin reaction.
H412	Harmful to aquatic life with long lasting effects

Supplementary statements

EUH208: Contains EDTA disodium salt. May produce allergic reactions.

Contact with acids liberates very toxic gas

Precautionary statements prevention

P271	Use only outdoors or in well-ventilated area.
P280	Wear protective gloves and protective clothing.
P261	Avoid breathing mist/vapors/spray
P264	Wash all exposed external body areas thoroughly after handling
P270	Do not eat, drink or smoke when using this product.
P273	Avoid release to the environment
P272	Contaminated work clothing should not be allowed out of the workplace

Precautionary statements response

P302+P352	If on skin: wash with plenty of water and soap.
P333+P313	If skin irritation or rash occurs: Get medical advice/attention.

- P362+P364 Take off contaminated clothing and wash it before use.
 P301+P312 If swallowed: call a poison center/doctor/first aider if you feel unwell.
 P304+P340 IF inhaled: remove person to fresh air and keep comfortable for breathing.
 P330 Rinse mouth.

Precautionary statements storage

Not applicable

Precautionary statements disposal

- P501 Dispose of contents/container to authorized hazardous or special waste collection point in accordance to any local regulation.

2.3. Other hazards
Results of PBT and vPvB assessment

PBT: Not applicable.

vPvB: Not applicable.

3 Composition/information on ingredients
Chemical characterization

Mixture

Description: The product is a mixture of the hazardous substances listed below along with unlisted nonhazardous substances.

Dangerous components:

Identification	Component	Weight (%)
CAS: 593-84-0 EINECS: 209-812-1	<i>Guanidine thiocyanate</i>	50-75%
	H: 302-312-332-412 EUH: 032 P: 273-302+352	
CAS: 1185-53-1 EINECS: 214-684-5	<i>Tris(hydroxymethyl)aminomethane</i>	1-5%
	Not applicable	
CAS: 6381-92-6 EINECS: 205-358-3	<i>EDTA disodium salt</i>	>1%
	H: 302-315-317-319	

4 First aid measures
4.1 Description of first aid measures
General information:

If exposed or in case of symptoms caused by eye or skin contact, inhalation or swallowing, consult a physician.

After inhalation:

Supply fresh air; consult doctor in case of symptoms.

After skin contact:

Instantly wash with water and soap and rinse thoroughly. If skin irritation continues, consult a doctor.

After eye contact:

Rinse opened eye for several minutes under running water. Consult a doctor.

After swallowing:

Do not induce vomiting; instantly call for medical help.

Most important symptoms and effects, both acute and delayed: No further relevant information available.



Indication of any immediate medical attention and special treatment needed: No further relevant information available.

5 Firefighting measures

5.1. Extinguishing media

Suitable extinguishing agents:

Dry chemical powder.
Carbon dioxide.
Water spray or fog (Large fires only).

Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given.

5.2. Special hazards arising from the substance mixture

Carbon oxides.
Nitrogen oxides (NO_x).
Hydrogen chloride gas.
Hydrogen cyanide (hydrocyanic acid).
Combustible.
Pay attention to flashback.
Vapors are heavier than air and may spread along floors.
Development of hazardous combustion gases or vapors possible in the event of fire.

5.3. Advice for firefighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

6 Accidental release measures

6.1. Personal precautions, protective equipment, and emergency procedures:

See Section 8

6.1. Environmental precautions

See section 12

6.3. Methods and material for containment and cleaning up:

Remove all ignition sources, clean up all spills immediately, avoid breathing vapors and contact with skin and eyes, control personal contact with the substance, by using protective equipment.

6.4. Reference to other sections

See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

7.1. Handling

Information for safe handling:

Wear protective clothing
Use in a well-ventilated area
Always wash hands with soap and a copious amount of water after handling
Keep containers securely sealed when not in use
Avoid physical damage to containers
Limit unnecessary personal contact
When handling, do not eat, drink or smoke

Information about protection against explosions and fires:

See section 5

7.2. Conditions for safe storage, including any incompatibilities

Keep tightly closed in a dry and cool place.

Store in the dark.

Keep locked up.

Avoid contamination of water, foodstuffs, feed or seed.

Requirements to be met by storerooms and containers:

Do not store together with oxidizing agents or acids.

7.3. Specific end use(s)

See section 1.2

8 Exposure controls and personal protection

8.1. Control parameters

Component	DNELs Exposure Pattern Worker	PNECs Compartment
<i>Guanidine thiocyanate</i>	Dermal 0.31 mg/kg bw/day (Systemic, Chronic) Inhalation 1.092 mg/m ³ (Systemic, Chronic) Inhalation 3.28 mg/m ³ (Systemic, Acute) Dermal 0.155 mg/kg bw/day (Systemic, Chronic) * Inhalation 0.27 mg/m ³ (Systemic, Chronic) * Oral 0.155 mg/kg bw/day (Systemic, Chronic) *	42.4 µg/L (Water (Fresh)) 4.24 µg/L (Water - Intermittent release) 424 µg/L (Water (Marine)) 165 µg/kg sediment dw (Sediment (Fresh Water)) 16.5 µg/kg sediment dw (Sediment (Marine)) 8.03 µg/kg soil dw (Soil) 20 mg/L (STP)
<i>Tris(hydroxymethyl) aminomethane</i>	Dermal 166.7 mg/kg bw/day (Systemic, Chronic) Inhalation 117.5 mg/m ³ (Systemic, Chronic) Dermal 83.3 mg/kg bw/day (Systemic, Chronic) * Inhalation 29 mg/m ³ (Systemic, Chronic) * Oral 8.3 mg/kg bw/day (Systemic, Chronic) *	300 mg/L (STP)
<i>EDTA disodium salt</i>	Inhalation 1.5 mg/m ³ (Local, Chronic) Inhalation 3 mg/m ³ (Local, Acute) Oral 25 mg/kg bw/day (Systemic, Chronic) * Inhalation 0.6 mg/m ³ (Local, Chronic) * Inhalation 1.2 mg/m ³ (Local, Acute)*	2.2 mg/L (Water (Fresh)) 0.22 mg/L (Water - Intermittent release) 1.2 mg/L (Water (Marine)) 0.72 (Soil) 43 mg/L (STP)

* Values for general population

Occupational Exposure Limits (OEL)

Not Applicable

Emergency Limits

Component	TEEL-1	TEEL-2	TEEL-3
<i>Guanidine thiocyanate</i>	0.98 mg/m ³	11 mg/m ³	65 mg/m ³
<i>Tris(hydroxymethyl) aminomethane</i>	18 mg/m ³	190 mg/m ³	1200 mg/m ³
<i>EDTA disodium salt</i>	30 mg/m ³	330 mg/m ³	2000 mg/m ³

8.2. Exposure controls
Appropriate engineering controls
Eye and face protection:

Safety glasses with side shields

Chemical goggles

Contact lenses might be a special hazard as contact lenses may absorb and concentrate irritants. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, remove contact lens as soon as practicable. Lens should be removed at any sign of eye redness or irritation in a clean environment only after workers have washed hands thoroughly.

Skin protection

See Hand protection below

Hands/feet protection

Wear gloves of a stable material.

Wear safety footwear or safety gumboots.

The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary with the manufacturer. Where the chemicals is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior application.

The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and has to be observed when making a final choice.

Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended. Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include:

- frequency and duration of contact,
- chemical resistance of glove material,
- glove thickness and
- dexterity

Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739, AS/NZS 2161.1 or national equivalent).

- When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.

- When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.

- Some glove polymer types are less affected by movement and this should be taken into account when considering gloves for long-term use.

- Contaminated gloves should be replaced.

As defined in ASTM F-739-96 in any application, gloves are rated as:

- Excellent when breakthrough time > 480 min

- Good when breakthrough time > 20 min

- Fair when breakthrough time < 20 min

- Poor when glove material degrades

For general applications, gloves with a thickness typically greater than 0.35 mm, are recommended.

It should be emphasized that glove thickness is not necessarily a good predictor of glove resistance to a specific chemical, as the permeation efficiency of the glove will be dependent on the exact composition of the glove material. Therefore, glove selection should also be based on consideration of the task requirements and knowledge of breakthrough times.

Glove thickness may also vary depending on the glove manufacturer, the glove type and the glove model. Therefore, the manufacturers technical data should always be taken into account to ensure selection of the most appropriate glove for the task.

Note: Depending on the activity being conducted, gloves of varying thickness may be required for specific tasks. For example:

- Thinner gloves (down to 0.1 mm or less) may be required where a high degree of manual dexterity is needed. However, these gloves are only likely to give short duration protection and would normally be just for single use applications, then disposed of.

- Thicker gloves (up to 3 mm or more) may be required where there is a mechanical (as well as a chemical) risk i.e., where there is abrasion or puncture potential

Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended.

Respiratory protection

Respiratory protection required when dusts are generated.

8.3. Environmental exposure controls

See section 12

9 Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	Not available		
Physical state	Liquid	Relative density (Water = 1)	Not available
Odor	Not available	Partition coefficient n-octanol / water	Not available
Odor threshold	Not available	Auto-ignition temperature (°C)	Not available
pH (as supplied)	Not available	Decomposition temperature (°C)	Not available
Melting point / freezing point (°C)	Not available	Viscosity (cSt)	Not available
Initial boiling point and boiling range (°C)	Not available	Molecular weight (g/mol)	Not available
Flash point (°C)	Not available	Taste	Not available



Evaporation rate	Not available	Explosive properties	Not available
Flammability	Not available	Oxidizing properties	Not available
Upper explosive limit (%)	Not available	Surface tension (dyn/cm or mN/m)	Not available
Lower explosive limit (%)	Not available	Volatile component (%vol)	Not available

9.2. Other information

Not available

10 Stability and reactivity

10.1 Reactivity

Risk of dust explosion.

Vapors may form explosive mixture with air.

The following applies in general to flammable organic substances and mixtures: in correspondingly fine distribution, when whirled up a dust explosion potential may generally be assumed.

Contact with acids liberates very toxic gas.

10.2 Chemical stability

Hygroscopic

This product is chemically stable under standard ambient conditions (room temperature).

Unstable in the presence of incompatible materials.

Thermal decomposition / conditions to be avoided:

Strong oxidizing agents and acids.

10.3 Possibility of hazardous reactions

Risk of explosion with:

Chlorates

Phosgene

organic nitro compounds

hydrogen peroxide

perchlorates

strong oxidizing agents

Nitric acid

nitrogen dioxide

Risk of ignition or formation of inflammable gases or vapours with:

Alkali metals

Alkaline earth metals

chromium(VI) oxide

Exothermic reaction with:

Aldehydes

Amines

fuming sulfuric acid

Iron

Aluminum

Chlorine

Strong acids

halogen compounds

potassium tert-butanolate

10.4 Conditions to avoid

Warming

10.5 Incompatible materials

Rubber, various plastics, oils

10.6 Hazardous decomposition products

In the event of fire see Section 5

11 Toxicological information

Acute toxicity

Component	Toxicity	Irritation
<i>Guanidine thiocyanate</i>	Dermal (Rabbit) LD50: >2000 mg/kg ^a Inhalation (rat) LC50: >0.853 mg/L 4h ^a Oral (rat) LD50: 474.6 mg/kg ^a	Skin: adverse effect observed (corrosive) ^a
<i>Tris(hydroxymethyl) aminomethane</i>	Dermal (Rabbit) LD50: >5000 mg/kg ^a Oral (rat) LD50: > 5000 mg/kg ^a	Eye: no adverse effect observed (not irritating) ^a Skin: no adverse effect observed (no irritating) ^a
<i>EDTA disodium</i>	Oral (rat) LD50: 400 mg/kg ^b Inhalation	Not available

^a Value obtained from Europe ECHA registered substances – Acute toxicity 2.

^b Value obtained from manufacturer's SDS.

Guanidine thiocyanate

The material may be irritating to the eye, with prolonged contact causing inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.

Asthma-like symptoms may continue for months or even years after exposure to the material ends. This may be due to a non-allergic condition known as reactive airways dysfunction syndrome (RADS) which can occur after exposure to high levels of highly irritating compound. Main criteria for diagnosing RADS include the absence of previous airways disease in a non-atopic individual, with sudden onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. Other criteria for diagnosis of RADS include a reversible airflow pattern on lung function tests, moderate to severe bronchial hyperreactivity on methacholine challenge testing, and the lack of minimal lymphocytic inflammation, without eosinophilia. RADS (or asthma) following an irritating inhalation is an infrequent disorder with rates related to the concentration of and duration of exposure to the irritating substance. On the other hand, industrial bronchitis is a disorder that occurs because of exposure due to high concentrations of irritating substance (often particles) and is completely reversible after exposure ceases. The disorder is characterized by difficulty breathing, cough and mucus production. The material may produce respiratory tract irritation, and result in damage to the lung including reduced lung function.

The material may cause skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin.

Tris(hydroxymethyl) aminomethane

Asthma-like symptoms may continue for months or even years after exposure to the material ends. This may be due to a non-allergic condition known as reactive airways dysfunction syndrome (RADS) which can occur after exposure to high levels of highly irritating compound. Main criteria for diagnosing RADS include the absence of previous airways disease in a non-



atopic individual, with sudden onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. Other criteria for diagnosis of RADS include a reversible airflow pattern on lung function tests, moderate to severe bronchial hyperreactivity on methacholine challenge testing, and the lack of minimal lymphocytic inflammation, without eosinophilia. RADS (or asthma) following an irritating inhalation is an infrequent disorder with rates related to the concentration of and duration of exposure to the irritating substance. On the other hand, industrial bronchitis is a disorder that occurs because of exposure due to high concentrations of irritating substance (often particles) and is completely reversible after exposure ceases. The disorder is characterized by difficulty breathing, cough and mucus production. TRIS AMINO and its surrogate chemicals have very little, if any, toxicity. They are mildly irritating to eyes at moderate concentrations, and do not cause allergic skin reactions. Ingestion of relatively high dosages can cause liver changes. Patients with decreased liver function should not be given these substances over extended treatment periods. They have been known to have a harmful effect on the fetus if taken during pregnancy.

EDTA disodium

EDTA is a strong organic acid, with a high affinity for alkaline-earth ions (for example, calcium and magnesium) and heavy-metal ions (such as lead and mercury), resulting in highly stable chelate complexes. The ability of EDTA to complex is used commercially to either promote or inhibit chemical reactions, depending on application. EDTA and its salts are expected to be absorbed by the lungs and the gastrointestinal tract; absorption through skin is unlikely. They cause mild skin irritation, and severe eye irritation. The greatest risk in the human body will occur when the EDTA attempts to scavenge the trace metals used and required by the body. The binding of divalent and trivalent cations by EDTA can cause mineral deficiencies, such as zinc deficiency. These appear to be responsible for all the known pharmacological effects. EDTA and its salts are mostly eliminated through the urine, with 5% eliminated via the bile, along with the metal ions which are bound to it. Trisodium EDTA has not been found to cause cancer. EDTA and its salts are not likely to cause harm to children and infants at levels likely to be encountered.

Acute toxicity	Yes	Carcinogenicity	No
Skin irritation/corrosion	Yes	Reproductivity	No
Serious eye damage/irritation	Yes	STOT-Single exposure	No
Respiratory or skin sensitization	No	STOT-Repeated exposure	No
Mutagenicity	No	Aspiration Hazard	No

12 Ecological information

12.1. Toxicity

Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Do NOT allow product to come in contact with surface waters or to intertidal areas below the mean high-water mark. Do not contaminate water when cleaning equipment or disposing of equipment wash-waters.

Wastes resulting from use of the product must be disposed of on site or at approved waste sites. For Thiocyanates:

Terrestrial Fate: Soil - At near ambient temperatures (approximately 30 C.) it appears that sorption and volatilization are not significant processes for thiocyanate in soil, with thiocyanate losses due primarily to microbial degradation. Thiocyanate is not persistent in soils. Thiocyanate may undergo both aerobic and anaerobic microbial degradation; however, the degradation pathway has not been defined. Saturated soils treated with thiocyanate were found to emit carbonyl sulfide (COS). Microbial degradation is the primary mechanism for

thiocyanate disappearance at or below 30 C., with carbonyl sulfide as a possible hydrolysis product. Loss of thiocyanate at higher temperatures (50-60 C.) did not appear to result from microbial degradation.

Aquatic Fate: Biodegradation is a significant transformation process for thiocyanates in natural waters. Thiocyanate is toxic to microorganisms at high concentrations; however, acclimated cultures have increased tolerance to this compound. At concentrations up to 1.42 g/L., thiocyanate is completely degraded within 4 days to ammonia and sulfate ion (SO₄²⁻) by an acclimatized co-culture of two bacteria (*Acinetobacter johnsonii* and *Pseudomonas diminuta*). Do not discharge into sewer or waterways.

12.2. Persistence and degradability

Component	Persistence (Water/soil)	Persistence (air)
<i>Guanidine thiocyanate</i>	No data available	No data available
<i>Tris(hydroxymethyl) aminomethane</i>	LOW	LOW
<i>EDTA disodium salt</i>	LOW	LOW

12.3. Bio accumulative potential

Component	Bio accumulation
<i>Guanidine thiocyanate</i>	No data available
<i>Tris(hydroxymethyl) aminomethane</i>	LOW (LogKOW = -1.5606)
<i>EDTA disodium</i>	LOW (LogKOW = -3.8573)

12.4. Mobility in soil

Component	Mobility
<i>Guanidine thiocyanate</i>	No data available
<i>Tris(hydroxymethyl) aminomethane</i>	HIGH (KOC = 1)
<i>EDTA disodium</i>	HIGH (KOC = 1046)

12.5. Results of PBT and vPvB assessment

Assessment	P	B	T
Relevant available data	No data available	No data available	No data available
PBT	No	No	No
vPvB	No	No	No

12.6. Endocrine Disruption properties

Not available

12.7. Other adverse effects

Not available

13 Disposal considerations

13.1. Waste treatment methods

Product or packaging disposal

Containers may still present a chemical hazard/ danger when empty. If container cannot be cleaned sufficiently well to ensure that residuals do not remain or if the container cannot be used to store the same product, then puncture containers, to prevent re-use, and bury at an authorized landfill. Where possible retain label warnings and SDS and observe all notices pertaining to the product. Legislation addressing waste disposal requirements may differ by country, state and/ or



territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.

A Hierarchy of Controls seems to be common - the user should investigate:

- Reduction
- Reuse
- Recycling
- Disposal (if all else fails)

This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. If it has been contaminated, it may be possible to reclaim the product by filtration, distillation, or some other means. Shelf-life considerations should also be applied in making decisions of this type. Note that properties of a material may change in use, and recycling or reuse may not always be appropriate. Do not allow wash water from cleaning or process equipment to enter drains. It may be necessary to collect all wash water for treatment before disposal. In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first. Where in doubt contact the responsible authority. Recycle wherever possible or consult manufacturer for recycling options. Consult State Land Waste Authority for disposal. Bury or incinerate residue at an approved site. Recycle containers if possible or dispose of in an authorized landfill.

14 Transport information

Section	ADR/RID	IMDG	IATA
UN number	Not applicable	Not applicable	Not applicable
UN proper shipping name	Not applicable	Not applicable	Not applicable
Transport hazard class(es)	Not applicable	Not applicable	Not applicable
Packaging group	Not applicable	Not applicable	Not applicable
Environmental hazards	Not applicable	Not applicable	Not applicable
Special precautions for user	Not applicable	Not applicable	Not applicable

15 Regulatory information

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

Guanidine thiocyanate is found on the following regulatory lists:

- Europe EC inventory
- European Union - European Inventory of Existing Commercial Chemical Substances (EINECS)
- European Union (EU) Regulation (EC) No 1272/2008 on Classification, Labelling and Packaging of Substances and Mixtures - Annex VI

EDTA disodium is found on the following regulatory lists:

- Europe EC inventory.
- European Union - European Inventory of Existing Commercial Chemical Substances (EINECS).

Tris(hydroxymethyl) aminomethane is found on the following regulatory lists:

- US DOE Temporary Emergency Exposure Limits (TEELs)
- US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory
- US TSCA Chemical Substance Inventory - Interim List of Active Substances



16 Other information

This version replaces all previous versions. 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. However, they shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

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.