

Version: 6.11 Revision Date 02.04.2019

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier

Trade name TRIETHANOLAMIN REIN

INCI Triethanolamine 01-2119486482-31-0002

Substance name (REACH / CLP) 2,2',2"-Nitrilotriethanol

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

Use Industrial use

raw material for synthesis processes in the chemical industry

anti-corrosion agent

Uses advised against

1.3 Details of the supplier of the safety data sheet

Company SASOL Germany GmbH

Anckelmannsplatz 1 20537 Hamburg Germany

Telephone: +49 40 63684-1000 Telefax: +49 40 63684-3700

Information (Product safety): Telephone: + 49 (0) 23 65 - 49 47 05

Telefax: + 49 (0) 23 65 - 49 92 40

E-mail address msds-info.germany@de.sasol.com

1.4 Emergency telephone number

Emergency telephone number + 49 (0) 23 65 - 49 22 32

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008.

2.2 Label elements

Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008.

2.3 Other hazards

No hazards to be specially mentioned.



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SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

This product is a substance in the meaning of regulation (EC) 1907/2006.

CHEMICAL CHARACTERIZATION

2,2',2"-Nitrilotriethanol

component type: Active ingredient

EC-No.: 203-049-8 Index-No.: CAS-No.: 102-71-6

REACH No.: 01-2119486482-31-0002

Substance name (REACH / CLP): 2,2',2"-nitrilotriethanol

COMPONENTS TO BE NAMED IN ACCORDANCE WITH REGULATION (EC) 1907/2006 AS WELL AS OTHER HAZARDOUS INGREDIENTS AND CONTAINED SUBSTANCES WITH WORK PLACE LIMIT VALUES

Substances for which maximum allowable workplace concentrations have been laid down

2,2',2"-Nitrilotriethanol

component type: Active ingredient

CAS-No.: 102-71-6

EC-No.: 203-049-8 **Index-No.**:

REACH No.: 01-2119486482-31-0002

Substance name (REACH / CLP): 2,2',2"-nitrilotriethanol

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

General advice No hazards which require special first aid measures.

If inhaled Remove from exposure, lie down. If breathing is irregular or stopped, administer

artificial respiration. Monitor breathing, give oxygen if necessary. Consult a

physician.

In case of skin contact

Wash off with soap and water.

In case of eye contact

Rinse with plenty of water.

If swallowed Consult a physician if necessary. Rinse mouth.

4.2 Most important symptoms and effects, both acute and delayed

Most important symptoms and effects, both acute and delayed

Symptoms: No information available.

Risks: No information available.

4.3 Indication of any immediate medical attention and special treatment needed

Indication of any immediate medical attention and special

treatment needed

Treatment: No information available.

SECTION 5: FIREFIGHTING MEASURES



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5.1 Extinguishing media

Suitable extinguishing media Water, Foam, Dry powder, Carbon dioxide (CO2)

5.2 Special hazards arising from the substance or mixture

Specific hazards during

firefighting

In case of fire hazardous decomposition products may be produced such as:

Nitrogen oxides (NOx)

5.3 Advice for firefighters

Special protective equipment

for firefighters

In the event of fire, wear self-contained breathing apparatus.

Further information Use extinguishing measures that are appropriate to local circumstances and the

surrounding environment.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions Handle in accordance with good industrial hygiene and safety practice.

Special precautions Forms slippery/greasy layers with water.

6.2 Environmental precautions

Environmental precautions Avoid subsoil penetration.

Do not flush into surface water or sanitary sewer system.

6.3 Methods and materials for containment and cleaning up

Methods for cleaning up Use mechanical handling equipment. Soak up with inert absorbent material (e.g.

sand, silica gel, acid binder, universal binder, sawdust).

6.4 Reference to other sections

For personal protection see section 8.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

Advice on safe handling No special technical protective measures required. Advice on protection against

fire and explosion

Normal measures for preventive fire protection.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas

and containers

Keep container tightly closed.

Storage class (TRGS 510) 10-13: German Storage Class 10 to 13 Other data Protect from frost, heat and sunlight.

container material unsuitable materials: Light metals/light metal alloys, copper/copper alloys

7.3 Specific end use(s)

Specific use(s) This information is not available.



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SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

COMPONENTS WITH WORKPLACE CONTROL PARAMETERS

National occupational exposure limits

Control parameters / Substance name	Тур	Control parameters	Update	Basis
TRIETHANOLAMINE	TWA	5 mg/m3	2009	ACGIH

EUROPEAN OCCUPATIONAL EXPOSURE LIMITS

No data available

DERIVED NO EFFECT LEVEL (DNEL)

	2,2',2"-nitrilotriethanol	T.v	T., .
End Use	Exposure routes	Value	Note
Workers	dermal, Acute/short-term exposure - systemic effects		Not relevant / Not applicable
	Inhalation, Acute/short-term exposure - systemic effects		Not relevant / Not applicable
	dermal, Acute/short-term exposure - local effects		Not relevant / Not applicable
	Inhalation, Acute/short-term exposure - local effects		Not relevant / Not applicable
	dermal, long-term exposure - systemic effects	6,3 mg/kg	based on body weight and day
	Inhalation, long-term exposure - systemic effects	5 mg/m3	
	dermal, long-term exposure - local effects		Not relevant / Not applicable
	Inhalation, long-term exposure - local effects	5 mg/m3	
Consumers	dermal, Acute/short-term exposure - systemic effects		Not relevant / Not applicable
	Inhalation, Acute/short-term exposure - systemic effects		Not relevant / Not applicable
	Oral, Acute/short-term exposure - systemic effects		Not relevant / Not applicable
	dermal, Acute/short-term exposure - local effects		Not relevant / Not applicable
	Inhalation, Acute/short-term exposure - local effects		Not relevant / Not applicable
	dermal, long-term exposure - systemic effects	3,1 mg/kg	based on body weight and day
	Inhalation, long-term exposure - systemic effects	1,25 mg/m3	



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Oral, long-term exposure - systemic effects	13 mg/kg	based on body weight and day
dermal, long-term exposure - local effects		Not relevant / Not applicable
Inhalation, long-term exposure - local effects	1,25 mg/m3	

PREDICTED NO EFFECT CONCENTRATION (PNEC)

Substance name: 2,2',2"-nitrilotriethanol			
Environmental Compartment	Value	Note	
Fresh water	0,32 mg/l		
Marine water	0,032 mg/l		
intermittent release	5,12 mg/l		
treatment plant	10 mg/l		
Fresh water sediment	1,7 mg/kg	based on dry weight	
Marine sediment	0,17 mg/kg	based on dry weight	
Soil	0,151 mg/kg	based on dry weight	
food		Not relevant / Not applicable	

8.2 Exposure controls

PERSONAL PROTECTIVE EQUIPMENT

Respiratory protection

No personal respiratory protective equipment normally required. In inadequately ventilated areas, where workplace limits are exceeded, where unpleasant odours exist or where aerosols are in use, or smoke and mist occur, use self-contained breathing apparatus or breathing apparatus with a type A filter or appropriate combined filter (e.g. where aerosols are in use, or smoke and mist occur, A-P2 or ABEK-P2), in compliance with EN 141.

Hand protection

The choice of an appropriate glove does not only depend on its material but also on other quality features and is different from one producer to the other., Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time., Be aware that in daily use the durability of a chemical resistant protective glove can be notably shorter than the break through time measured according to EN 374, due to the numerous outside influences (e.g. temperature).

gloves suitable for permanent contact:

Material: Nitrile rubber/nitrile latex Break through time: >= 480 min Layer thickness: 0,35 mm

Material: butyl-rubber

Break through time: >= 480 min Layer thickness: 0,5 mm

Eye protection Safety glasses

Skin and body protection Wear suitable protective equipment.



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Hygiene measures General industrial hygiene practice.

Protective measuresNo special protective equipment required.

ENVIRONMENTAL EXPOSURE CONTROLS

General advice Avoid subsoil penetration.

Do not flush into surface water or sanitary sewer system.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Physical state solid; 20 °C; 1.013 hPa

Form solid

Colourcolorless to yellowOdourammoniacalOdour ThresholdNot applicable

pH ca. 11; 20 g/l; 20 °C

Melting point/range ca. 21 °C

Boiling point/boiling range Not applicable

Thermal decomposition

Flash point ca. 190 °C; DIN 51758

Evaporation rate Not relevant / Not applicable

Justification: Solid

Flammability (solid, gas) No data available

 Lower explosion limit
 No data available

 Upper explosion limit
 No data available

 Vapour pressure
 < 0,01 hPa; 20 °C</td>

 Relative vapour density
 No data available

 Density
 ca.1,12 g/cm3; 20 °C

 Relative density
 No data available

 Water solubility
 completely miscible

Partition coefficient: n-

octanol/water

log Pow: -1,75; (calculated)

Ignition temperatureca. 330 °C; DIN 51794Auto-ignition temperaturenot auto-flammableViscosity, dynamic208 mPas; 40 °C

Explosive properties not expected based on structure and functional groups

Oxidizing properties No data available

9.2 Other data



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None known.

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

Note Stable at normal ambient temperature and pressure.

No decomposition if stored and applied as directed.

10.2 Chemical stability

Note No decomposition if stored and applied as directed.

10.3 Possibility of hazardous reactions

Hazardous reactions None known.

10.4 Conditions to avoid

Conditions to avoid Direct heating, dirt, chemical contamination, sunlight, UV or ionising radiation.

10.5 Incompatible materials to avoid

Materials to avoid None known.;

10.6 Hazardous decomposition products

Hazardous decomposition

products

No decomposition if stored normally.

Thermal decomposition No decomposition if used as directed.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity

Acute oral toxicity 2,2',2"-Nitrilotriethanol:

LD50 Rat: > 5.000 mg/kg; OECD Test Guideline 401

(literature value)

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

Acute inhalation toxicity 2,2',2"-Nitrilotriethanol: Study/Test not required

Justification:

Obtaining data is technically impossible.

Acute dermal toxicity 2.2'.2"-Nitrilotriethanol:

LD50 Rabbit: > 2.000 mg/kg; OECD Test Guideline 402

Symptoms: Erythema (literature value)

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

Skin corrosion/irritation

Skin irritation 2,2',2"-Nitrilotriethanol:

Rabbit: not irritating; OECD Test Guideline 404

(literature value)

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



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Human experience -Skin

contact

2,2',2"-Nitrilotriethanol: Redness

(literature value) not irritating

Serious eye damage/eye irritation

Eye irritation 2,2',2"-Nitrilotriethanol:

Rabbit: not irritating; OECD Test Guideline 405

(literature value)

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

Respiratory or skin sensitisation

Sensitisation 2,2',2"-Nitrilotriethanol:

Maximisation Test Guinea pig: not sensitizing; OECD Test Guideline 406

(literature value)

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

Germ cell mutagenicity

Genotoxicity in vitro 2,2',2"-Nitrilotriethanol:

In vitro tests did not show mutagenic effects

(literature value)

Genotoxicity in vivo 2,2',2"-Nitrilotriethanol:

The study is not necessary.

Justification:

In vitro tests did not show mutagenic effects

Remarks 2,2',2"-Nitrilotriethanol:

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

Carcinogenicity

Carcinogenicity 2,2',2"-Nitrilotriethanol:

Rat; dermal; 2 years; 5 days/week; OECD Test Guideline 451

In this study no cancerogenic effects were observed.

(literature value)

Remarks 2,2',2"-Nitrilotriethanol:

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

Reproductive toxicity

Reproductive toxicity 2,2',2"-Nitrilotriethanol:

Two-generation reproductive toxicity: Rat; Oral

NOAEL ((parents)): 300 mg/kg (based on body weight and day) NOAEL (F1): 1.000 mg/kg (based on body weight and day)

NOAEL (F2): 1.000 mg/kg (based on body weight and day); OECD Test Guideline

416

(literature value)

The data are derived from the evaluations or test results achieved with similar

products (conclusion by analogy). Test substance: 2-aminoethanol

RemarksReproductive

toxicity

2,2',2"-Nitrilotriethanol:

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

Teratogenicity 2,2',2"-Nitrilotriethanol:

Rat; Oral

NOAEL: 450 mg/kg (based on body weight and day)

NOAEL (pregnant female): 120 mg/kg (based on body weight and day); OECD

Test Guideline 414 (literature value)

The data are derived from the evaluations or test results achieved with similar

products (conclusion by analogy). Test substance: 2-aminoethanol



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> Remarks-Teratogenicity 2,2',2"-Nitrilotriethanol:

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

STOT - single exposure

Remarks 2,2',2"-Nitrilotriethanol:

The substance or mixture is not classified as specific target organ toxicant, single

exposure.

STOT - repeated exposure

Remarks 2,2',2"-Nitrilotriethanol:

The substance or mixture is not classified as specific target organ toxicant,

repeated exposure.

Repeated dose toxicity 2,2',2"-Nitrilotriethanol:

Rat; oral feed; Subchronic toxicity

NOAEL: 1.000 mg/kg (based on body weight and day); OECD Test Guideline 408

(literature value)

2,2',2"-Nitrilotriethanol:

Rat; Inhalation; Subacute toxicity; NOAEC: 0,5 mg/l Test atmosphere: dust/mist; OECD Test Guideline 412

(literature value)

2,2',2"-Nitrilotriethanol:

Rat; Dermal; Subchronic toxicity

NOAEL: 250 mg/kg (based on body weight and day); OECD Test Guideline 411

Target Organs: Kidney (literature value)

Aspiration hazard

2,2',2"-Nitrilotriethanol: Aspiration toxicity

Not applicable

Toxicological information 2,2',2"-Nitrilotriethanol:

Toxicokinetics

Absorption through skin is possible. The substance is metabolised and excreted.

(literature value)

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish 2,2',2"-Nitrilotriethanol:

LC50 (96 h) Pimephales promelas (fathead minnow): > 100 mg/l; flow-through test

(literature value)

Toxicity to fish - Chronic

toxicity

2,2',2"-Nitrilotriethanol: study scientifically unjustified

Toxicity to daphnia and other

aquatic invertebrates

2.2'.2"-Nitrilotriethanol:

EC50 (48 h) Ceriodaphnia sp.: > 100 mg/l; static test (literature value)

Toxicity to daphnia and other

aquatic invertebrates - Chronic toxicity

2.2'.2"-Nitrilotriethanol:

NOEC (21 d) Daphnia magna (Water flea): 16 mg/l; mortality; semi-static test;

(literature value)

Toxicity to aquatic plants 2.2'.2"-Nitrilotriethanol:

EC50 (72 h) Desmodesmus subspicatus (green algae): > 100 mg/l; static test;



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(literature value)

Toxicity to bacteria 2,2',2"-Nitrilotriethanol:

EC50 (180 min) activated sludge of a predominantly domestic sewage: > 1.000

mg/l; Respiration inhibition; OECD Test Guideline 209

(literature value)

Toxicity to soil dwelling

organisms

2,2',2"-Nitrilotriethanol: The study is not necessary.

Justification:

Readily biodegradable.

Direct exposure to soil is unlikely.

Toxicity to terrestrial flora 2,2',2"-Nitrilotriethanol:

The study is not necessary.

Justification:

Readily biodegradable.

Direct exposure to soil is unlikely.

Toxicity for other terrestrial non-mammalian fauna

2,2',2"-Nitrilotriethanol: The study is not necessary.

Justification:

Studies on birds do not need to be conducted due to large mammalian dataset.

Direct exposure to soil is unlikely.

Readily biodegradable.

12.2 Persistence and degradability

Biodegradability 2,2',2"-Nitrilotriethanol:

Readily biodegradable.; > 60 %; 5 d; aerobic; CO2 Evolution Test

(literature value)

12.3 Bioaccumulative potential

Bioaccumulation 2,2',2"-Nitrilotriethanol:

Cyprinus carpio (Carp); 42 d; 0,25 mg/l; Bioconcentration factor (BCF): 3,9; OECD

Test Guideline 305C (literature value)

Bioaccumulation is unlikely.

12.4 Mobility in soil

Mobility 2,2',2"-Nitrilotriethanol:

Adsorption/Soil; Medium: Soil; Koc: 10; log Koc: 1; calculated

(literature value) Highly mobile in soils

12.5 Results of PBT and vPvB assessment

Results of PBT assessment 2,2',2"-Nitrilotriethanol:

This substance is not considered to be persistent, bioaccumulating and toxic

(PBT).

12.6 Other adverse effects

General advice 2,2',2"-Nitrilotriethanol:

None known.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product Can be incinerated, when in compliance with local regulations.

Contaminated packaging Empty remaining contents.



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waste code of the European

Union: EWC

A waste code in accordance with the European Waste Catalogue (EWC) may not be assigned to this product since it admits of a classification only when the consumer uses it for some purpose. The waste code must be determined in agreement with the regional waste disposal authority or company.

SECTION 14: TRANSPORT INFORMATION

14.1 UN number

ADR Not dangerous goods RID Not dangerous goods ADN Not dangerous goods **IMDG** Not dangerous goods ICAO/IATA Not dangerous goods

14.2 Proper shipping name

ADR Not dangerous goods RID Not dangerous goods ADN Not dangerous goods **IMDG** Not dangerous goods ICAO/IATA Not dangerous goods

14.3 Transport hazard class

ADR Not dangerous goods RID Not dangerous goods ADN Not dangerous goods **IMDG** Not dangerous goods ICAO/IATA Not dangerous goods

14.4 Packing group

ADR Not dangerous goods RID Not dangerous goods ADN Not dangerous goods **IMDG** Not dangerous goods ICAO/IATA Not dangerous goods

14.5 Environmental hazards

ADR Environmentally hazardous no RID Environmentally hazardous no ADN Environmentally hazardous nο **IMDG** Marine pollutant no ICAO/IATA Environmentally hazardous no

14.6 Special precautions for user

Not classified as dangerous in the meaning of transport regulations.

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Ship type



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Pollution category

Remarks MARPOL NAME: Triethanolamine

SECTION 15: REGULATORY INFORMATION

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

NATIONAL/OTHER REGULATIONS

Legislation on the control of major-accident hazards involving dangerous substances

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.

list entry in the directive:: Not applicable

NOTIFICATION STATUS

Switzerland. Consolidated Inventory	CH INV	listed (product or constituents are listed)
US. Toxic Substances Control Act	TSCA	listed (product or constituents are listed)
Canada. Canadian Environmental Protection Act (CEPA). Domestic Substances List (DSL)	DSL	listed (product or constituents are listed)
Australia. Industrial Chemical (Notification and Assessment) Act	AICS	listed (product or constituents are listed)
Japan. Kashin-Hou Law List	ENCS (JP)	listed (product or constituents are listed)
Japan. Industrial Safety & Health Law (ISHL) List	ISHL (JP)	listed (product or constituents are listed)
Korea. Existing Chemicals Inventory (KECI)	KECI (KR)	listed (product or constituents are listed)
Philippines. The Toxic Substances and Hazardous and Nuclear Waste Control Act	PICCS (PH)	listed (product or constituents are listed)
China. Inventory of Existing Chemical Substances (IECSC)	INV (CN)	listed (product or constituents are listed)

Please note: the names and CAS numbers which are used for this product in the stated inventories may deviate from the information which is listed in chapter 3.

15.2 Chemical safety assessment

2,2',2"-nitrilotriethanol

A Chemical Safety Assessment has been carried out for this substance.

SECTION 16: OTHER INFORMATION



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Safety datasheet sections which have been updated:

7. Handling and storage

Further information: The information provided in this Safety Data Sheet is correct to the best of our

knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any

other materials or in any process, unless specified in the text.

This safety datasheet only contains information relating to safety and does not

replace any product information or product specification.

Key or legend to abbreviations and acronyms used in the safety data sheet

ADN Accord européen relatif au transport international des marchandises dangereuses par voie de navigation intérieure

ADR Accord européen relatif au transport international des marchandises Dangereuses par Route

Australian Inventory of Chemical Substances AICS ANSI American National Standards Institute American Society of Testing and Materials (US) ASTM

Bioconcentration factor BCF

CLP Regulation on Classification, Labelling and Packaging of Substances and Mixtures

DIN Deutsches Institut für Normung DNEL Derived No-Effect Level DSL Domestic Substances List EC.. Effect concentration ... %

ENCS Existing Notified Chemical Substances (Japan)

EWC European Waste Catalogue International Air Transport Association IATA IBC Intermediate Bulk Container

ICAO International Civil Aviation Organization International Maritime Dangerous Goods IMDG IMO International Maritime Organization Industrial Safety and Health Law (Japan) ISHL International Organization for Standardization ISO **IUAPC** International Union of Pure and Applied Chemistry

KECI Korea Existing Chemicals Inventory

Lethal Concentration, ...% LC...

LD.. Lethal Dose, ...%

MARPOL International Convention for the Prevention of Pollution From Ships

NDSL Non-Domestic Substances List NOAEL no observable adverse effect level NOEL/NOEC No Observed-effect level/concentration NZIoC OECD New Zealand Inventory of Chemicals

Organisation for Economic Co-operation and Development

PBT persistent, bioaccumulative, toxic

PICCS Philippine Inventory of Chemicals and Chemical Substances **PNEC** Predicted No-Effect Concentration

REACH Registration, Evaluation, Authorisation and Restriction of Chemicals RID Règlement concernant le transport international ferroviaire de marchandises dangereuses

TG Test Guideline

TRGS Technische Regeln für Gefahrstoffe Toxic Substances Control Act TSCA very persistent, very bioaccumulative vPvB

WGK Wassergefährdungsklasse

Annex

Attachments to the safety data sheet and/or lists of the identified uses for the listed substances can be downloaded using the internet links below.

2,2',2"-nitrilotriethanol

http://www.sasolgermany.de/fileadmin/doc/productsafety/Annex/00000000117_EN_01.pdf



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