

ISSUE NO.	13.0	<h1>TAED Based Granulate</h1> <h2>SAFETY DATA SHEET</h2>
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According to regulation (EC) N ^o . 1907/2006		
Emergency Telephone: +44 (0)1745 560654		



1. Identification of the Substance/Mixture and of the Company/Undertaking

1.1 Product Identification

Product Name	Tetraacetythylenediamine (TAED) in granulated form
Other Means of Identification	Mykon Series (including 1220); B Series (except B675/B620); CX Series; T Series; Peroxyboost Series;
Proper Shipping name	Tetraacetythylenediamine
Product Code	-
SDS No.	13
Historic SDS No.	12
EC Number	234-123-8
CAS Number	10543-57-4
Reach Registration Number	01-2119453617-33-0003 (for the TAED component)
Product Type	Free flowing granules

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

Identified Uses	Industrial Manufacturing, Formulation (mixing) of preparations and/or repackaging, Private households, Public domain, Washing cleaning products, Use in batch and other processes where opportunity for exposure exists.
Use of the Substance/mixture	For specific application advice; see appropriate Technical Data Sheet or consult our company representative.

1.3 Details of the Supplier of the Safety Data Sheet

Supplier	Warwick Chemicals Dock Road Mostyn Holywell Flintshire CH8 9HE United Kingdom Tel +44 (0)1745 560651 www.warwickchem.com
Email Address	pbryant@warwickchem.com

1.4 Emergency Telephone Number

Emergency Telephone Number	+44 (0)1745 560654 (24hr response)
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2. HAZARDS IDENTIFICATION

2.1 Classification of the Substance or Mixture

Product Definition	Multi-constituent mixture
Classification According to Regulation (EC) No 1272/2008 (CLP/GHS)	No classification warranted
Classification According to Directive 67/548/EEC (DSD)	No classification warranted

2.2 Label Elements

Hazard Pictograms	Not applicable
Signal Word	Not applicable
Hazard Statements	Not applicable

Precautionary Statements

Prevention	Keep away from heat/sparks/open flames/hot surfaces. No smoking
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Response	Do not breathe in dust. If in eyes, wash out
Storage	Not applicable
Disposal	This material can be disposed of by landfill. Local/national/international disposal rules to be applied.
Supplemental Label Elements	Not required
Special Packaging Requirements	
Containers to be fitted with Child-resistant fastenings	Not applicable
Tactile warning of danger	Not applicable

2.3 Other Hazards

Substance meets the criteria for PBT according to Regulation (EC) No 1907/2006, Annex XIII	This mixture (preparation) does not contain a substance that is classified as PTB
Substance meets the criteria for vPvB according to regulation (EC) No. 1907/2006 Annex XIII	This mixture (preparation) does not contain a substance that is classified as vPvB
Other hazards which do not result in classification	If fine dust is liberated during handling a dust explosion hazard may exist. TAED should be regarded as a nuisance dust if inhaled.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance/Mixture	Multi-constituent mixture			Classification		Type
				67/548/EEC	Regulation (EC) No. 1272/2008 (CLP)	
Product/Ingredient Name	Identifiers	%				
Tetraacetylenediamine	EC N ^o 234-123-8	>80%	Not applicable	Not applicable	Not applicable	A
	CAS N ^o 10543-57-4					
	REACH# 01-2119453617-33-0003					
Organic binder (Sodium carboxymethylcellulose)	CAS N ^o 9004-32-4	<20%	Not applicable	Not applicable	Not applicable	A
Water	CAS N ^o 7732-18-5	<2%	Not applicable	Not applicable	Not applicable	A
<i>See Section 16 for the full text of the R-phases declared above</i>						
<i>See Section 16 for the full text of the H statements declared above</i>						
Type						
(A)	Constituent					
(B)	Impurity					
(C)	Stabilising Additive					
Occupational exposure limits, if available are listed in Section 8.						

4. FIRST AID MEASURES

4.1 Description of First Aid Measures

Eye Contact	<p>Effects or symptoms: No known effect, but may cause irritation</p> <p>Treatment: Immediately flush the eye with plenty of water and continue for 10 minutes. Obtain medical attention if irritation persists.</p>
Skin Contact	<p>Effects or symptoms: No known effect, but may cause irritation</p> <p>Treatment: Wash the affected area with water and obtain medical attention if irritation persists. Wash contaminated clothing before use.</p>

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Inhalation	<p>Effects or symptoms: No known effect. If exposed to high concentrations of air borne dust irritation to the mucous membranes and the respiratory tract may occur.</p> <p>Treatment: Do not induce vomiting. Wash out mouth with water. Seek medical attention if patient feels unwell.</p>
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Ingestion	<p>Effects or symptoms: No known effect.</p> <p>Treatment: In the event of irritation move the patient to fresh air. Give oxygen if breathing difficulty is experienced then seek medical attention.</p>
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Protection of First Aiders	No action shall be taken involving any personal risk or without suitable training
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4.2 Most Important Symptoms and effects, both acute and delayed

See Section 11 for more detailed information on health effects and symptoms

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician	Treatment should in general be symptomatic and directed to relieving any effects.
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5. FIRE FIGHTING MEASURES

5.1 Extinguishing Media

Suitable Extinguishing Media	Extinguish with water spray, carbon dioxide, dry chemical foam or polymer foam.
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Unsuitable Extinguishing Media	Do not use high pressure water jet
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5.2 Special Hazards arising from the substance or mixture

Hazards from the substance or mixture	On contact with water the product can create a slip hazard
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Hazardous Combustion Products	The product will burn in air to, initially, give acetic acid and cyclic amine tars. Further heating will give carbon dioxide and oxides of nitrogen
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5.3 Advice for Fire-fighters

Special precautions for Fire-fighters	Do not use high pressure water jet as this might induce potentially explosive dust cloud
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Special protective equipment for Fire-fighters	Fire fighters should wear protective clothing and self-contained breathing apparatus.
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6. ACCIDENTAL RELEASE MEASURES

6.1 Personal Precautions, Protective Equipment and Emergency Procedures

For Non-Emergency Personnel	Wear the recommended protective clothing. Avoid raising any dust. Ventilate the spillage area and wash the spill site after materials collection is complete.
For Emergency Responders	Fire fighters should wear protective clothing and self-contained breathing apparatus. Do not use high pressure water jet as this might induce potentially explosive dust cloud On contact with water the product can create a slip hazard

6.2 Environmental Precautions

Environmental Precautions	All solid material to be collected and stored in a suitable labelled, closed container for correct disposal. Any dissolved material can be diluted to drain with large volumes of water
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6.3 Methods and Materials for Containment and Cleaning Up

Small Spill	Stop leak if without risk. Remove containers away from the spill area. Brush up and contain without raising too much dust.
Large Spill	Stop leak if without risk. Remove containers away from the spill area. Brush up and contain without raising too much dust. Recommend wearing appropriate/suitable RPE/PPE
6.4 Reference to Other Sections	See Section 1 for emergency contact information. See Section 5 for fire fighting measures. See Section 8 for information on appropriate personal protective equipment. See Section 12 for environmental precautions. See Section 13 for additional waste treatment information.

7. HANDLING AND STORAGE

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use – specific information provided in the Exposure Scenario(s).

7.1 Precautions for Safe Handling

Protective Measures	Store in the original containers. Store away from heat in a dry place.
Advice on general occupational hygiene	Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of the workday

7.2 Conditions for Safe Storage, including any incompatibilities

Store in original containers. Store away from heat in a dry place. Can be stored in containers made from Stainless steel, grades 304, 316, 321; mild steel coated with epoxy paint, polypropylene
AVOID: Mild steel, copper, brass

7.3 Specific end use(s)

Recommendations	See section 1.2 and Exposure scenarios in annex, if applicable.
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8. EXPOSURE CONTROLS/PERSONAL PROTECTION

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

8.1 Control Parameters

Occupational Exposure Limits	Product/Ingredient Name	Exposure Limit Values
	TAED	OES for nuisance dusts: 10mg/m ³ total inhalable dust 8hr TWA 4mg/m ³ respirable dust 8hr TWA Ref: EH40
	Sodium carboxymethylcellulose	OES for nuisance dusts: 10mg/m ³ total inhalable dust 8hr TWA 4mg/m ³ respirable dust 8hr TWA Ref: EH40

Whilst specific OELs for certain components may be shown in this section, other components may be present in any mist, vapour or dust produced. Therefore, the specific OELs may not be applicable to the product as a whole and are provided for guidance only.

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Recommended Procedures	Monitoring	If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to European Standard EN 689 for methods for the assessment of exposure by inhalation to chemical agents and national guidance documents for methods for the determination of hazardous substances.				
Derived No Effect Level		Product/Ingredient Name	Type	Exposure	Value	Population Effects
		TAED	DNEL	Repeated dose, oral	0.45mg/kg	Worker Systemic
		TAED	DNEL	Repeated dose, dermal	20 mg/cm ²	Worker Systemic
		TAED	DNEL	Repeated dose, inhalation	6.4mg/m ³	Worker Systemic
		TAED	DNEL	Irritation/corrosivity	-	- Not applicable
		TAED	DNEL	Sensitisation	-	- Not applicable
Predicted No Effect Concentration		Product/Ingredient Name	Type	Compartment Detail	Value	Method Detail
		TAED	PENC	Freshwater	10	Assessment factors
		TAED	PENC	Marine water	0.5	Assessment factors
		TAED	PENC	Intermittent releases	10	Assessment factors

8.2 Exposure Controls Appropriate Engineering Controls

Use transfer systems that minimise damage to granules, which may lead to fine dusts being produced. Enclosed transfer systems are recommended or provide local exhaust ventilation where possible to avoid liberation of dust. Provide exhaust ventilation or other engineering controls to keep the relevant airborne concentrations below their respective occupational exposure limits. All activities involving chemicals should be assessed for their risks to health, to ensure exposures are adequately controlled. Personal protective equipment should only be considered after other forms of control measures (e.g. engineering controls) have been suitably evaluated. Personal protective equipment should conform to appropriate standards, be suitable for use, be kept in good condition and properly maintained.

Individual Protection Measures

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice. Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Ensure that eyewash stations and safety showers are close to the workstation location.

Respiratory Protection

Recommended: Where dust is liberated during handling or transfer suitable respirator equipment, using particulate filters, should be used. Selection should be based on the atmospheric concentration, and the duration of exposure. Advice on respiratory equipment is given in British Standard Numbers 4275 and standards EN149, 405, 140 etc. **Half mask respirators to minimum FFP2 standard.**

Eye/Face Protection

Recommended: Goggles that offer protection against dust ingress. Advice on eye protection is given in EN166 (UK & EU)

Skin Protection

Hand Protection

Wear suitable gloves. The correct choice of protective gloves depends upon the chemicals being handled, the conditions of work and use, and the condition of the gloves (even the best chemically resistant glove will break down after repeated chemical exposures). Most gloves provide only a short time of protection before they must be discarded and replaced. Because specific work environments and material handling practices vary, safety procedures should be developed for each intended application.

Recommended: Impervious or dust proof gloves (to BS EN 374 or similar)

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Skin and Body

Use of protective clothing is good industrial practice. Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Cotton or polyester/cotton overalls will only provide protection against light superficial contamination that will not soak through to the skin. Overalls should be laundered on a regular basis. When the risk of skin exposure is high (e.g. when cleaning up spillages) then chemical resistant aprons and/or impervious chemical suits and boots will be required. Recommended: Impervious or dust proof overalls (to EN 340 or similar)

Environmental Exposure Controls

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

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance

Physical State	Granular solid
Odour	Odourless
Odour Threshold	Not applicable
pH	5 (20°C in deionised water, 1g/l)
Melting Point/Freezing Point	149 °C – 154 °C
Initial Boiling Point and Boiling Range	Data not available
Flash Point	Not applicable
Evaporation Rate	Not applicable
Flammability (solid, gas)	Data not available
Upper/Lower Flammability or Explosive Limits	Not applicable
Vapour Pressure	Data not available
Vapour Density	Data not available
Relative Density	Data not available
Density	550kg/m ³
Solubility(ies)	1.46g/litre in water at 21°C
Partition Coefficient: n-octanol/water	Data not available
Auto-ignition Temperature	Data not available
Decomposition Temperature	Data not available
Viscosity	Not applicable
Explosive Properties	St Class 2
Oxidising Properties	Not applicable

9.2 Other Information

No additional information.

10. STABILITY AND REACTIVITY

10.1 Reactivity

No specific test data available for this product. Refer to Conditions to avoid and incompatible conditions for additional information

10.2 Chemical Stability

Products are stable in air at ambient temperature. TAED and organic binders are stable with respect to hydrolysis in neutral aqueous solution. TAED will hydrolyse in aqueous alkali or acid to give diacetylenediamine.

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10.3	Possibility of Hazardous Reactions	Under normal conditions of storage and use hazardous conditions will not occur Under normal conditions of storage and use hazardous polymerisation will not occur
10.4	Conditions to Avoid	Keep away from heat, sparks and flames. This product should be stored away from strong oxidising agents
10.5	Incompatible Materials	Acids, Alkali, Strong Oxidising agents
10.6	Hazardous Decomposition Products	Acetic acid and oxides of nitrogen

11. TOXICOLOGICAL INFORMATION

11.1 Information on Toxicological Effects

Acute Toxicity

Product/Ingredient name	Result/Route	Test Authority/ Number	Species	Dose	Exposure	Remarks
TAED	LD50: >2000 mg/kg bw (male/female)	OECD GUIDELINE 401	Rat (Wistar)	-	-	1 (reliable without restriction)
	LD50: 7940 mg/kg bw	EPA OPPTS 870.1100	Rat (Sprague-Dawley)	-	-	1 (reliable without restriction)
	LD50: 8050 mg/kg bw	Equivalent to OECD GUIDELINE 401	Rat (male)	-	-	2 (2 reliable with restrictions)

Irritation/Corrosion

Product/Ingredient Name	Test Authority / Number	Species	Route/ Result	Test Concentration	Remarks
TAED	EPA OPPTS 870.2500	Rabbit (white New Zealand)	Not irritating	0 of max.4; mean (all animals); 24hr/48hr/72hr	1 (reliable without restriction)
	OECD guideline 404	Rabbit (white New Zealand)	Not irritating	0 of max.4; mean (all animals); 24hr/48hr/72hr	1 (reliable without restriction)
Skin	Not irritating				
Eyes	Not irritating				

Germ Cell Mutagenicity

Product/Ingredient Name	Test Authority / Test Number	Cell	Type	Result	Remarks
TAED	Bacterial reverse mutation assay (Ames)	-	-	Negative (with and without metabolic activation)	1 (reliable without restriction)
	In vitro mammalian chromosome aberration test	-	-	Negative (with and without S9 mix)	1 (reliable without restriction)

Conclusion/ Summary TAED was non-mutagenic in bacterial reverse mutation assays, non-castogenic in V79 cells and human lymphocyte cultures and non-mutagenic in the micronucleus test in vivo. Based on this data it is concluded that TAED is not subject to classification and labelling according to Directive 67/548/EEC and Regulation 1272/2008/EC regarding genetic toxicity

Reproductive Toxicity

Product/ingredient name	Test authority/number	Test Species	Route	Exposure	Developmental	Maternal toxicity	Fertility	Remarks
TAED	OECD guideline and GLP 414	Rat (Sprague-Dawley)	Gavage	NOEL was 40mg/kg bw	-	-	-	1 (reliable without restriction)

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Conclusion/ Summary Based on the existing toxicity and kinetic data on TAED it is demonstrated that TAED has no reproductive toxicity potential. It is concluded that TAED is not subject to classification and labelling according to Directive 67/548/EEC and Regulation 1272/2008/EC regarding reproductive toxicity

Aspiration Hazard

Conclusion/ Summary Should be considered as a nuisance dust

Specific Target Organ Toxicity

Product/Ingredient Name	Hazard	Test Authority/ Test Number	Species	Route	Type	Dose	Exposure	Target Organs	Remarks
-	-	-	-	-	-	-	-	-	-

Conclusion/Summary No specific data available

Information on the likely routes of exposure Routes of entry anticipated: inhalation, ingestion

Potential Acute Health Effects

Inhalation Should be considered as a nuisance dust

Ingestion Possible irritation to the mouth, throat

Skin Contact There should be no adverse symptoms

Eye Contact Slight irritation to the eye

Symptoms related to the Physical, Chemical and Toxicological Characteristics

Inhalation Adverse symptoms may include the following:
Slight irritation of the upper airway

Ingestion Adverse symptoms may include the following:
Slight irritation of the mouth, throat

Skin Contact There should be no adverse symptoms

Eye Contact Adverse symptoms may include the following:
Slight irritation of the eye

Potential Chronic Health Effects

General No known significant effects or critical hazards

Carcinogenicity No known significant effects or critical hazards

Mutagenicity No known significant effects or critical hazards

Development Effects No known significant effects or critical hazards

Fertility Effects No known significant effects or critical hazards

Other Information -

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12. ECOLOGICAL INFORMATION

12.1 Toxicity

Product/ Ingredient Name	Test Authority/ Test Number	Species	Type/Result	Exposure	Effects	Remarks
TAED	OECD 203	Fish	Acute toxicity test NOEC 1000 mg/l	96h	-	1 (reliable without restrictions)
	OECD 202	Daphnia magna	EC50 >1000mg/l	48h	-	1 (reliable without restrictions)
	OECD 201	Algae	EC50 >1000mg/l	72h	-	1 (reliable without restrictions)
	OECD 209	Sludge	EC50 >1000mg/l	3h	-	1 (reliable without restrictions)

Environmental Hazards Not classified as an environmental hazard

12.2 Persistence and Degradability

Readily Biodegradable This material is readily biodegradeable

Product/Ingredient Name	Test Authority / Test Number	Result – Exposure	Remarks
TAED	OECD 301B (Sturm test)	68-95% (28d)	1 (reliable without restrictions)
	OECD 301D	52-56% (28d)	2 (reliable with restrictions)
	OECD 303 A	98% (DOC)	1 (reliable without restrictions)
	OECD 302A	79 (28d)	1 (reliable without restrictions)

12.3 Bioaccumulative Potential

This product is not expected to bioaccumulate through food chains in the environment.

Product/Ingredient Name	Log Kow	BCF	Potential
TAED	-0.1	3.2	No significant tendency to bioaccumulate

12.4 Mobility in Soil

Soil/Water Partition coefficient (Koc) 15 l/kg. (AISE -1992). 43 – 80 (Shell – 2000) different soils

Mobility Not available

12.5 Results of PBT and vPvB Assessment

PBT This mixture (preparation) does not contain a substance that is classified as PTB

vPvB This mixture (preparation) does not contain a substance that is classified as vPvB

12.6 Other Adverse Effects

No known significant effects or critical hazards

Other Ecological Information TAED has a low ecotoxicity profile. Toxicity to aerobic and anaerobic bacteria is low.

13. DISPOSAL CONSIDERATION

The information in this section contains generic advice and guidance. The list of Identified uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

13.1 Waste Treatment Methods

Product

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Methods of Disposal The material should be disposed of by authorised landfill. Strict adherence must be made to all European, national and local laws and regulations. Waste should not be disposed of by release to sewers.

Hazardous Waste This material is not classified as a hazardous waste

Packaging

Methods of Disposal Dispose of packaging as unused product. (The material should be disposed of by authorised landfill. Strict adherence must be made to all European, national and local laws and regulations.)

Special Precautions None

14. TRANSPORT INFORMATION

	ADR/RID	AND/ADNR	IMDG	IATA
14.1 UN Number	Not classified	Not classified	Not classified	Not classified
14.2 UN Proper Shipping Name	-	-	-	-
14.3 Transport Hazard Class(es)	Not classified	Not classified	Not classified	Not classified
14.4 Packing Group	0	0	0	0
14.5 Environmental Hazards	No	No	No	No
14.6 Special Precautions for User	Not available	Not available	Not available	Not available
Additional Information	-	-	-	-
UK Emergency Action Code	2T			
ADR/RID Classification Code	-			
AND/ADNR Classification Code	-			
14.7 Transport in Bulk according to Annex II of MARPOL 73/78 and the IBC Code	Proper shipping name		-	
	Ship type		-	
	Pollution category		-	

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15. REGULATORY INFORMATION

15.1 Safety, Health and Environmental Regulations/Legislation specific for the Substance or Mixture

EU Regulation (EC) No. 1907/2006 (REACH)

The TAED component is registered (registration number 01-2119453617-33-0003)

Annex XIV – List of Substances subject to Authorisation

Not applicable

Substances of very high concern

None of the components are listed

Annex XVII – Restrictions on the Manufacture, placing on the market and use of certain dangerous substances, mixtures and articles

Not applicable

Other Regulations

United States Inventory (TSCA 8b)

Listed

Australia Inventory (AICS)

Listed

Canada Inventory

Listed

China Inventory (IECSC)

Listed

Japan Inventory (ENCS)

Listed

Korea Inventory (KECI)

Listed

Philippines Inventory (PICCS)

Listed

15.2 Chemical Safety Assessment

Complete

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16. OTHER INFORMATION

Abbreviations and Acronyms	ADN/ADNR	European Provisions concerning the International Carriage of Dangerous Goods by Inland Waterway
	ADR	The European Agreement concerning the International Carriage of Dangerous Goods by Road
	ATE	Acute Toxicity Estimate
	BCF	Bioconcentration Factor
	CAS	Chemical Abstracts Service
	CLP	Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
	CSA	Chemical Safety Assessment
	CSR	Chemical Safety Report
	CMEL	Derived Minimal Effect Level
	DNEL	Derived No Effect level
	DPD	Dangerous Preparations Directive [1999/45/EC]
	DSD	Dangerous Substances Directive [67/548/EEC]
	EINECS	European Inventory of Existing Commercial Chemical Substances
	ES	Exposure Scenario
	EUH Statement	CLP – Specific Hazard Statement
	EWC	European Waste Catalogue
	GHS	Globally Harmonized System of Classification and Labelling of Chemicals
	IATA	International Air Transport Association
	IBC	Intermediate Bulk Container
	IMDG	International Maritime Dangerous Goods
	LogPow	Logarithm of the Octanol/Water Partition Coefficient
	MARPOL 73/78	International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ('Marpol' – Marine pollution).
	OECD	Organisation for Economic Co-operation and Development
	PBT	Persistent, Bioaccumulative and Toxic
	PNEC	Predicted No Effect Concentration
	RID	The Regulations concerning the International Carriage of Dangerous Goods by Rail
	RRN	Reach Registration Number
	SADT	Self-Accelerating Decomposition Temperature
	SVHC	Substances of Very High Concern
	STOT-RE	Specific Target Organ Toxicity – Repeated Exposure
	STOT-SE	Specific Target Organ Toxicity – Single Exposure
	TWA	Time Weighted Average

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UN	United Nations
UVCB	Unknown or variable composition, complex reaction products or biological materials
VOC	Volatile Organic Compound
vPvB	Very Persistent and Very Bioaccumulative

Full Set of Abbreviated H Statements
 Full text of Classifications (CLP/GHS)
 Full text of Abbreviated R Phrases
 Full Text of Classifications (DSD/DPD)

Not applicable
 Not applicable
 Not applicable
 Not applicable

History

Date of Issue/Date of Revision
 Date of Previous Issues
 Prepared by
 Indicates information that has changed from previously issued version

05/07/2014
 12/05/2014
 Responsible Care Department

All reasonably practicable steps have been taken to ensure this data sheet and the health, safety and environmental information contained in it is accurate as of the date specified below. No warranty or representation, express or implied is made as to the accuracy or completeness of the data and information in this data sheet.

The data and advice given apply when the product is sold for the stated application or applications. You should not use the product other than for the stated application or applications without seeking advice from us.

Notice to Reader

It is the user's obligation to evaluate and use this product safely and to comply with all applicable laws and regulations. Warwick Chemicals shall not be responsible for any damage or injury resulting from use, other than the stated product use of the material, from any failure to adhere to recommendations, or from any hazards inherent in the nature of the material. Purchasers of the product for supply to a third party for use at work, have a duty to take all necessary steps to ensure that any person handling or using the product is provided with the information in this sheet. Employers have a duty to tell employees and others who may be affected or any hazards described in this sheet and of any precautions that should be taken.

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Annex to the Extended Safety Data Sheet (eSDS)

Identification of the Substance or Mixture

Product Definition	Multi-constituent mixture
Code	-
Product Name	Tetraacetylenediamine (TAED) in granulated form

SECTION 1: TITLE

Short Title of the Exposure Scenario	Distribution of substance	
List of Use Descriptors	Identified use name	Distribution of substance
	Process category	PROC5
	Sector end of use	SU3, SU21
	Subsequent service life relevant for that use	-
	Environmental Release category	ERC2
Processes and Activities Covered by the Exposure Scenario	Loading (including FIBC's, PE sacks, tankers) and repacking of the substance. Blending with other materials. Sampling, storage, unloading, final distribution.	
Assessment Method	See Section 3	

SECTION 2: OPERATION CONDITIONS AND RISK MANAGEMENT MEASURES

Section 2.1: Control of Worker Exposure

Concentration of substance in product	Covers daily exposures up to 8 hours (unless stated differently)
Physical State	Assumes use at not more than 20°C above ambient temperature (unless stated differently) Assumes a good basic standard of occupational hygiene is implemented
Amounts Used	Not applicable
Frequency and Duration of Use	Covers daily exposures up to 8 hours (unless stated differently)
Human Factors not influenced by Risk Management	Not applicable
Other Operational Conditions affecting Worker Exposure	Assumes use at not more than 20°C above ambient temperature (unless stated differently) Assumes a good basic standard of occupational hygiene is implemented

Contributing Scenarios: Operational Conditions and Risk Management Measures

General Exposures (closed systems) with sample collection with occasional controlled exposure	Provide extract ventilation to points where emissions occur
General Exposures (Closed Systems) Use in contained batch processes	Handle substance within a closed system Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) Avoid carrying out activities involving exposure for more than 1 hour
General Exposures (closed systems) Batch process with sample collection	Provide extract ventilation to points where emissions occur
Process Sampling	Sample via a closed loop or other system to avoid exposure
Laboratory Activities	Handle in a fume cupboard or under extract ventilation
Bulk Transfers (Closed systems)	Clear transfer lines prior to de-coupling. Provide extract ventilation to points where emissions occur. Or if above technical/organisational control measures are not feasible, then adopt following PPE: Wear a respirator conforming to EN140 (EN149 or EN 405) or better and wear suitable gloves tested to EN374.
Bulk Transfers (Open Systems)	Provide extract ventilation to points where emissions occur: or if above technical/organisational control measures are not feasible, then adopt following PPE: Wear a respirator conforming to EN140 (EN149 or EN 405) or better and wear suitable gloves tested to EN374.
Drum and Small Package Filling	Provide extract ventilation to points where emissions occur.
Equipment Cleaning and Maintenance	Drain down and flush system prior to equipment break-in or maintenance. Wear suitable gloves tested to EN374.

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Storage with Occasional Exposure	Controlled	Store substance within a closed system. Locate bulk storage outdoors. or Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).
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Section 2.2: Control of Environmental Exposure

In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB Assessment) no hazard was identified. Therefore, according to REACH Annex I (5.0) an exposure estimation and risk characterization is not necessary.

SECTION 3: EXPOSURE ESTIMATION

Exposure Estimation and Reference to its Source – Environment

Exposure Assessment (Environment)	No exposure estimation and risk characterization required
Exposure Estimation	Not available.

Exposure Estimation and Reference to its Source – Workers

Exposure Assessment (Human)	When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted DNELs and the resulting risk characterisation ratios are expected to be less than 1.
Exposure Estimation	Not available.

SECTION 4: GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO

Environment	No exposure estimation and risk characterization required
Health	Confirm that RMMs and OCs are as described or of equivalent efficiency.

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Annex to the Extended Safety Data Sheet (eSDS)

Identification of the Substance or Mixture

Product Definition	Multi-constituent mixture
Code	-
Product Name	Tetraacetylenediamine (TAED) in granulated form

SECTION 1: TITLE

Short Title of the Exposure Scenario	(Re)packaging of Substances and Mixtures - Industrial
List of Use Descriptors	Identified Use Name Industrial manufacturing (all), Chemical formulation and (re)packing of substances and mixtures, Public domain (professional use)
	Process Category PROC01, PROC02, PROC03, PROC04, PROC05, PROC09, PROC14, PROC15
	Sector of End Use SU03, SU10, SU22
	Subsequent Service Life Relevant for that Use No
	Environmental Release Category ERC8a
Processes and Activities Covered by the Exposure Scenario	Formulation, packing and re-packing of the substance and its mixtures in batch or continuous operations, including storage, materials transfers, mixing, tableting, compression, pelletisation, extrusion, large and small scale packing, sampling, maintenance and associated laboratory activities.
Assessment Method	See Section 3

SECTION 2: OPERATION CONDITIONS AND RISK MANAGEMENT MEASURES

Section 2.1: Control of Worker Exposure

Concentration of substance in product	Covers percentage substance in the product up to 100% (unless stated differently).
Physical State	Assumes use at not more than 20°C above ambient temperature (unless stated differently) Assumes a good basic standard of occupational hygiene is implemented
Amounts Used	Not applicable.
Frequency and Duration of Use	Covers daily exposures up to 8 hours (unless stated differently).
Human Factors not influenced by Risk Management	Not applicable.
Other Operational Conditions affecting Worker Exposure	Assumes use at not more than 20°C above ambient temperature (unless stated differently). Assumes a good basic standard of occupational hygiene is implemented.

Contributing Scenarios: Operational Conditions and Risk Management Measures

General Exposures (closed systems)	Handle substance within a closed system.
General Exposures (closed systems) with sample collection with occasional controlled exposure	Handle substance within a closed system. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).
General Exposures (Closed Systems) Use in contained batch processes	Handle substance within a closed system. Provide extract ventilation to points where emissions occur.
General Exposures (open systems) Batch process with sample collection with potential for aerosol generation	Provide extract ventilation to points where emissions occur.
Batch processes at elevated temperatures	Ensure material transfers are under containment or extract ventilation. Avoid carrying out activities involving exposure for more than 1 hour.
Process Sampling	Sample via a closed loop or other system to avoid exposure.
Laboratory Activities	Handle in a fume cupboard or under extract ventilation.
Bulk Transfers (Closed systems)	Ensure material transfers are under containment or extract ventilation.
Bulk Transfers (Open Systems)	Ensure material transfers are under containment or extract ventilation.

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Drum and Small Package Filling	Provide extract ventilation to points where emissions occur.
Equipment Cleaning and Maintenance	Drain down and flush system prior to equipment break-in or maintenance. Wear suitable gloves tested to EN374.
Storage with Occasional Controlled Exposure	Locate bulk storage outdoors or provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Section 2.2: Control of Environmental Exposure

In the chemical safety assessment performed according to Article 14(3) in connection with Annex I section 3 (Environmental Hazard Assessment) and section 4 (PBT/ vPvB Assessment) no hazard was identified. Therefore according to REACH Annex I (5.0) an exposure estimation and risk characterization is not necessary.

SECTION 3: EXPOSURE ESTIMATION

Exposure Estimation and Reference to its Source – Environment

Exposure Assessment (Environment)	No exposure estimation and risk characterization required
Exposure Estimation	Not available.

Exposure Estimation and Reference to its Source – Workers

Exposure Assessment (Human)	When the recommended risk management measures (RMMS) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted DNELs and the resulting risk characterisation ratios are expected to be less than 1.
Exposure Estimation	Not available.

SECTION 4: GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO

Environment	No exposure estimation and risk characterization required
Health	Confirm that RMMS and OCs are as described or of equivalent efficiency.