according to Regulation (EU) No. 1907/2006

4.4. Draduat identifiar

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

Commercial name	: ASPIC Clear – Compon	ent A
Index No.	: NA.	
CE No.	: NA.	
CAS. No	.: NA.	
REACH Registration No.	: NA (mixture)	
Origin: organic, aspartic acid		

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

Uses : Polyaspartic resin system

1.3 Details of the supplier of the safety data sheet.

Entity	: KEMICA COATINGS
Adress	: Z.A. DU BOIS GUESLIN
	28630 MIGNIERES
	FRANCE
Tel.	: +33 (0)2 37 26 39 87 +33 (0)2 37 26 33 56

E-Mail

: info@kemica-coatings.com

1.4 Emergency telephone number

For France : Organisme de conseil/centre antipoison national

France : O	RFILA
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Telephone : +33 (0)1 45 42 59 59

<u>Supplier</u>

Telephone : +33 2 37 26 33 56 (8h30-12h00, 13h30-17h)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Type of substance - Composition: mixture <u>Classification according to regulation (CE) n° 1272/2008 [CLP/SGH]</u> Sensitization of the skin, Category 1 (H317)

Chronically hazardous to the aquatic environment, Category 3 (H412)

See section 16 for the full text of the H statements declared above. For more details on health consequences and symptoms, see section 11.

2.2. Label elements



Hazardous components which must be listed on the label Aspartic Acid, N,N'-(methylenedi-4,1-cyclohexanediyl)bis-, 1,1',4,4'-tetraethyl ester Index-No.: 607-521-00-8 Aspartic Acid, N,N'-[methylenebis(2-methyl-4,1-cyclohexanediyl)]bis-, 1,1',4,4'-tetraethyl ester Index-No.: 607-350-00-9 Hazard statements: H317 May cause an allergic skin reaction. H412 Harmful to aquatic life with long lasting effects. Precautionary statements: according to Regulation (EU) No. 1907/2006

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P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.

P272 Contaminated work clothing should not be allowed out of the workplace.

P273 Avoid release to the environment.

P280 Wear protective gloves.

P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.

P362 + P364 Take off contaminated clothing and wash it before reuse.

2.3 Other hazards

No information available.

SECTION 3: Composition/information on ingredients

3.1. Substances

N.A.

3.2. Mixtures

Hazardous components :

nom	CAS No. Index-No. EC-No.	REACH registration No.	% [weight]	classification [1272/2008/EC]
Aspartic Acid, N,N'- (methylenedi-4,1- cyclohexanediyl)bis-, 1,1',4,4'-tetraethyl ester	136210-30-5 607-521-00-8 429-270-1	01-0000017556-64-0000	50-80	Skin Sens. 1 H317 Aquatic Chronic 3 H412
Aspartic Acid, N,N'- [methylenebis(2- methyl-4,1- cyclohexanediyl)]bis-, 1,1',4,4'-tetraethyl ester	607-350-00-9 412-060-9	01-0000015937-58-0000 01-0000015937-58-0001	20-50	Skin Sens. 1 H317 Aquatic Chronic 3 H412
N-Butyl-2-(1-ethylpentyl)- 1,3-oxazolidine	165101-57-5	01-0000017206-75- XXXX	1.5- 2.5	Aquatic Chronic 2 H411

This contains:

Fumaric acid diethyl ester

Concentration [wt.-%]: ca. 5

EC-No.: 210-819-7

CAS-No.: 623-91-6

Classification (1272/2008/CE): Acute Tox. 4 Oral H302 Skin Irrit. 2 H315 Eye Dam. 1 H318 STOT SE 3 H335

Exposure scenarios are not required for the impurities of the substance according to article 3(1) of Regulation (EC) No 1907/2006 mentioned above.

Candidate List of Substances of Very High Concern for Authorisation

This product does not contain substances of very high concern (Regulation (EC) No 1907/2006 (REACH), Article 57).

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice: Take off all contaminated clothing immediately.

If inhaled: Take the person into the fresh air and keep him warm, let him rest; if there is difficulty in breathing, medical advice is required.

In case of skin contact: In case of skin contact wash affected areas thoroughly with soap and plenty of water. Consult a doctor in the event of a skin reaction.

In case of eye contact: Hold the eyes open and rinse with preferably lukewarm water for a sufficiently long period of time (at least 10 minutes). Contact an ophthalmologist.

If swallowed: DO NOT induce the patient to vomit, medical advice is required.

4.2 Most important symptoms and effects, both acute and delayed

Notes to physician: Basic first aid, decontamination, symptomatic treatment.

4.3 Indication of any immediate medical attention and special treatment needed Therapeutic measures: No information available.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media: Carbon dioxide (CO2), Foam, extinguishing powder, in cases of larger fires, water spray should be used.

Unsuitable extinguishing media: High volume water jet

according to Regulation (EU) No. 1907/2006

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5.2 Special hazards arising from the substance or mixture

Burning releases carbon monoxide, carbon dioxide, oxides of nitrogen and traces of hydrogen cyanide. In the event of fire and/or explosion do not breathe fumes.

5.3 Advice for fire-fighters

Firemen must wear self-contained breathing apparatus.

Do not allow contaminated extinguishing water to enter the soil, ground-water or surface waters.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Put on protective equipment (see section 8). Ensure adequate ventilation/exhaust extraction.

Keep unauthorized persons away.

6.2 Environment related measures

Do not allow to escape into waterways, wastewater or soil. 6.3 Methods and material for containment and cleaning up

Take up with absorbent for chemicals or, if necessary with dry sand and store in closed containers.

6.4 Reference to other sections

For further disposal measures see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

If an annex according to REACH-Regulation (EU) No. 1907/2006 is attached to this MSDS, the general conditions of use are further specified in the corresponding exposure scenarios.

Ensure adequate ventilation and, if necessary, exhaust ventilation when handling or transferring the product. The personal protective measures described in section 8 must be observed. Avoid contact with skin and eyes absolutely.

Keep away from foodstuffs, drinks and tobacco. Wash hands before breaks and at end of work and use skinprotecting ointment. Keep working clothes separately. Change contaminated or soaked clothing immediately.

7.2 Conditions for safe storage, including any incompatibilities

Keep container dry and tightly closed in a cool and well ventilated place. Further information on the storage conditions which must be observed to preserve quality can be found in our product information sheet. Storage class (TRGS 510) : 10: Combustible liquids

7.3 Specific end use(s)

For details of the identified uses according to REACH-Regulation (EU) No. 1907/2006 refer to the annex of this safety data sheet.

SECTION 8: Exposure controls/personal protection

If an annex according to Regulation (EU) No. 1907/2006 is attached to this MSDS, the general RMMs are further specified in the corresponding exposure scenarios.

8.1 Control parameters

No information on Exposure Limit Values necessary according to EC directive 2006/121/EG Derived No Effect Level (DNEL)

Aspartic Acid, N,	N'-[met	nylenebis	s(2-methyl-4,1	l-cyclol	hexanediyl)]bis-,	1,1	',4,4'-tetraethyl ester
	_						

Value type	Route of exposure	Health Effects	Value	Remarks
Workers	Inhalation	Long-term systemic effects	84 mg/m3	Most sensitive endpoint: Repeated dose toxicity oral
Workers	Inhalation	Acute systemic effects	672 mg/m3	Most sensitive endpoint: Repeated dose toxicity oral
Workers	Inhalation	Long-term local effects		No hazard identified
Workers	Inhalation	Acute local effects		No hazard identified
Workers	Dermal	Long-term systemic effects	11.9 mg/kg bw/day	Most sensitive endpoint: Repeated dose toxicity oral
Workers	Dermal	Acute systemic effects		No hazard identified
Workers	Dermal	Long-term local effects		Medium hazard (no threshold derived) Most sensitive endpoint: Sensitisation (skin)

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Workers Dermal Acute local effects Medium hazard (no threshold derived) Most sensitive endpoint: Sensitisation (skin) Local effects No hazard identified Workers Eye contact Consumers Inhalation Long-term systemic 14.5 mg/m3 Most sensitive endpoint: Repeated dose toxicity oral effects 14.5 mg/m3 Most sensitive endpoint: Consumers Inhalation Acute systemic effects Repeated dose toxicity oral Consumers Inhalation Long-term local No hazard identified effects Inhalation Acute local effects No hazard identified Consumers Consumers Dermal Long-term systemic 4.2 mg/kg bw/day Most sensitive endpoint: Repeated dose toxicity oral effects Consumers Acute systemic Most sensitive endpoint: Dermal 4.2 mg/kg bw/day effects Repeated dose toxicity oral Consumers Dermal Long-term local Medium hazard (no threshold derived) Most sensitive effects endpoint: Sensitisation (skin) Acute local effects Medium hazard (no threshold Consumers Dermal derived) Most sensitive endpoint: Sensitisation (skin) Consumers Oral Long-term systemic 4.2 mg/kg bw/day Most sensitive endpoint: Repeated dose toxicity oral effects Oral Acute systemic Consumers 4.2 mg/kg bw/day Most sensitive endpoint: Repeated dose toxicity oral effects Consumers Local effects No hazard identified Eye contact

Aspartic Acid, N,N'-(methylenedi-4,1-cyclohexanediyl)bis-, 1,1',4,4'-tetraethyl ester

Value type	Route of exposure	Health Effects	Value	Remarks
Workers	Inhalation	Long-term systemic effects	28 mg/m3	Most sensitive endpoint: Repeated dose toxicity oral
Workers	Inhalation	Acute systemic effects	112 mg/m3	Most sensitive endpoint: Repeated dose toxicity oral
Workers	Inhalation	Long-term local effects		No hazard identified
Workers	Inhalation	Acute local effects		No hazard identified
Workers	Dermal	Long-term systemic effects	4 mg/kg bw/day	Most sensitive endpoint: Repeated dose toxicity oral
Workers	Dermal	Acute systemic effects		No hazard identified
Workers	Dermal	Long-term local effects		Medium hazard (no threshold derived) Most sensitive endpoint: Sensitisation (skin)
Workers	Dermal	Acute local effects		Medium hazard (no threshold derived) Most sensitive endpoint: Sensitisation (skin)
Workers	Eye contact	Local effects		No hazard identified
Consumers	Inhalation	Long-term systemic effects	4.8 mg/m3	Most sensitive endpoint: Repeated dose toxicity oral
Consumers	Inhalation	Acute systemic effects	4.8 mg/m3	Most sensitive endpoint: Repeated dose toxicity oral

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Consumers	Inhalation	Long-term local effects		No hazard identified
Consumers	Inhalation	Acute local effects		No hazard identified
Consumers	Dermal	Long-term systemic effects	1.4 mg/kg bw/day	Most sensitive endpoint: Repeated dose toxicity oral
Consumers	Dermal	Acute systemic	1.4 mg/kg bw/day	Most sensitive endpoint:
Consumers	Dermal	Long-term local effects		Medium hazard (no threshold derived) Most sensitive endpoint: Sensitisation (skin)
Consumers	Dermal	Acute local effects		Medium hazard (no threshold derived) Most sensitive endpoint: Sensitisation (skin)
Consumers	Oral	Long-term systemic effects	1.4 mg/kg bw/day	Most sensitive endpoint: Repeated dose toxicity oral
Consumers	Oral	Acute systemic effects	1.4 mg/kg bw/day	Most sensitive endpoint: Repeated dose toxicity oral
Consumers	Eye contact	Local effects		No hazard identified

Predicted No Effect Concentration (PNEC) Aspartic Acid, N,N'-[methylenebis(2-methyl-4,1-cyclohexanediyl)]bis-, 1,1',4,4'-tetraethyl ester

Compartment	Value	Remarks
Fresh water	0.00013 mg/l	
Fresh water sediment	0.21 mg/kg	dry weight
Marine water	0.000013 mg/l	
Marine sediment	0.02 mg/kg	dry weight
Sewage treatment plant	31.1 mg/l	
Air		No hazard identified
Soil	0.1 mg/kg	dry weight
Oral		Does not bioaccumulate.
Intermittent use/release		not applicable

Aspartic Acid, N,N'-(methylenedi-4,1-cyclohexanediyl)bis-, 1,1',4,4'-tetraethyl ester

Compartment	Value	Remarks
Fresh water	0.00013 mg/l	
Fresh water sediment	0.21 mg/kg	dry weight
Marine water	0.000013 mg/l	
Marine sediment	0.02 mg/kg	dry weight
Sewage treatment plant	31.1 mg/l	
Air		No hazard identified
Soil	0.1 mg/kg	dry weight
Oral		Does not bioaccumulate.
Intermittent use/release		not applicable

8.2 Exposure controls

Respiratory protection

Respiratory protection required in insufficiently ventilated working areas and during spraying. Further recommendations regarding respiratory protection can be found in the individual exposure

scenarios in the appendix.

Persons who suffer from skin complaints or other hypersensitivity reactions of skin should not work with the product.

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Hand Suitab Lamina Recom	protection le materials for safety gloves; EN 374: ate glove - PE/EVAL/PE; breakthrough time >=480 min. nmendation: contaminated gloves should be disposed of.		
Eye pı	otection		
Wear e	eye/face protection.		
Skin a	nd body protection		

Wear suitable protective clothing. Wearing a spray protective overall with hood (Type 4, EN 14605) is required during spraying. All parts of the body must be covered (also wrists, ankles, throat, and neck).

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance:	liquid
Colorr:	colourless
Odor:	slight inherent odor
Odour Threshold:	not established
pH:	not established
Melting point/range:	not established
Boiling point/boiling range	>200 °C at 1 013 hPa
Bonnig point bonnig range.	
Flash point:	c_2 74 °C at 1 006 bPa
Evaporation rate:	not established
Flammability (solid, gas):	not applicable
Burning number:	not applicable
Vapour pressure:	not established
Vapour pressure of ingredients:	
Aspartic Acid,	< 0.00002 hPa at 20 °C
N,N'-(methylenedi-4,1-cyclohexane	
diyl)bis-, 1,1',4,4'-tetraethyl ester	
Fumaric acid diethyl ester	ca. 2.6 hPa at 25 °C
Vapour density:	not established
Density:	ca. 1.06 g/cm³ at 20 °C
Miscibility with water:	immiscible at 15 °C
Auto-ignition temperature:	not applicable
Ignition temperature:	not established
Decomposition temperature:	not established
Viscosity, dynamic:	ca. 1,300 mPa.s at 20 °C
Explosive properties:	not established
Dust explosion class:	not applicable
Oxidising properties:	not established
9 2 Other information	

The indicated values do not necessarily correspond to the product specification. Please refer to the technical information sheet for specification data.

SECTION 10: Stability and reactivity

10.1 Reactivity This information is not available.

10.2 Chemical stability
This information is not available.
10.3 Possibility of hazardous reactions
No hazardous reactions when used as directed.
10.4 Conditions to avoid
This information is not available.
10.5 Incompatible materials
This information is not available.
10.6 Hazardous decomposition products

No hazardous decomposition products when stored and handled correctly.



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SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity, oral Aspartic Acid, N,N'-(methylenedi-4,1-cyclohexanediyl)bis-, 1,1',4,4'-tetraethyl ester LD50 rat: > 2,000 mg/kg Method: Directive 67/548/EEC, Annex V, B.1. Toxicological studies of a comparable product. Aspartic Acid, N,N'-[methylenebis(2-methyl-4,1-cyclohexanediyl)]bis-, 1,1',4,4'-tetraethyl ester LD50 rat: > 2,000 mg/kg Method: Directive 67/548/EEC, Annex V, B.1. Acute toxicity, dermal Aspartic Acid, N,N'-(methylenedi-4,1-cyclohexanediyl)bis-, 1,1',4,4'-tetraethyl ester LD50 rat: > 2,000 mg/kg Toxicological studies of a comparable product. Aspartic Acid, N,N'-[methylenebis(2-methyl-4,1-cyclohexanediyl)]bis-, 1,1',4,4'-tetraethyl ester LD50 rat: > 2,000 mg/kg Acute toxicity, inhalation Aspartic Acid, N,N'-(methylenedi-4,1-cyclohexanediyl)bis-, 1,1',4,4'-tetraethyl ester LC50 rat, male/female: > 4.224 mg/l, 4 h Test atmosphere: dust/mist Method: OECD Test Guideline 403 Toxicological studies of a comparable product. Aspartic Acid, N,N'-[methylenebis(2-methyl-4,1-cyclohexanediyl)]bis-, 1,1',4,4'-tetraethyl ester LC50 rat. male/female: > 4.224 mg/l. 4 h Test atmosphere: dust/mist Method: OECD Test Guideline 403 Assessment: The substance or mixture has no acute inhalation toxicity Primary skin irritation Aspartic Acid, N,N'-(methylenedi-4,1-cyclohexanediyl)bis-, 1,1',4,4'-tetraethyl ester Species: rabbit Result: slight irritant Classification: No skin irritation Method: OECD Test Guideline 404 Toxicological studies of a comparable product. Aspartic Acid, N,N'-[methylenebis(2-methyl-4,1-cyclohexanediyl)]bis-, 1,1',4,4'-tetraethyl ester Species: rabbit Result: slight irritant Classification: No skin irritation Method: OECD Test Guideline 404 Primary mucosae irritation Aspartic Acid, N,N'-(methylenedi-4,1-cyclohexanediyl)bis-, 1,1',4,4'-tetraethyl ester Species: rabbit Result: slight irritant Classification: No eye irritation Method: OECD Test Guideline 405 Toxicological studies of a comparable product. Effect on the respiratory tract: Result: slight irritant Toxicological studies of a comparable product. Aspartic Acid, N,N'-[methylenebis(2-methyl-4,1-cyclohexanediyl)]bis-, 1,1',4,4'-tetraethyl ester Species: rabbit Result: slight irritant Classification: No eve irritation Method: OECD Test Guideline 405 Effect on the respiratory tract: Result: slight irritant Sensitisation Aspartic Acid, N,N'-(methylenedi-4,1-cyclohexanediyl)bis-, 1,1',4,4'-tetraethyl ester Skin sensitisation according to Magnusson/Kligmann (maximizing test): Species: Guinea pig Result: positive Classification: May cause sensitization by skin contact (Sub cat. 1B) Method: OECD Test Guideline 406 Toxicological studies of a comparable product.

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13.01.2020 (replaces the version of 18/10/2019) 2.0 Respiratory sensitization Toxicological studies on the product are not yet available. Aspartic Acid, N,N'-[methylenebis(2-methyl-4,1-cyclohexanediyl)]bis-, 1,1',4,4'-tetraethyl ester Skin sensitisation according to Magnusson/Kligmann (maximizing test): Species: Guinea pig **Result:** positive Classification: May cause sensitization by skin contact (Sub cat. 1B) Method: OECD Test Guideline 406 Respiratory sensitization Toxicological studies on the product are not yet available. Subacute, subchronic and prolonged toxicity Aspartic Acid, N,N'-(methylenedi-4,1-cyclohexanediyl)bis-, 1,1',4,4'-tetraethyl ester NOAEL: 1,000 mg/kg Application Route: Subacute oral toxicity Species: rat Dose Levels: 0 - 40 - 200 - 1.000 mg/kg Method: OECD Test Guideline 407 Toxicological studies of a comparable product. Aspartic Acid, N,N'-[methylenebis(2-methyl-4,1-cyclohexanediyl)]bis-, 1,1',4,4'-tetraethyl ester NOAEL: 1,000 mg/kg Application Route: Subacute oral toxicity Species: rat Dose Levels: 0 - 40 - 200 - 1000 mg/kg Method: OECD Test Guideline 407 Carcinogenicity Aspartic Acid, N,N'-(methylenedi-4,1-cyclohexanediyl)bis-, 1,1',4,4'-tetraethyl ester Toxicological studies on the product are not yet available. Aspartic Acid, N,N'-[methylenebis(2-methyl-4,1-cyclohexanediyl)]bis-, 1,1',4,4'-tetraethyl ester Toxicological studies on the product are not yet available. **Reproductive toxicity/Fertility** Aspartic Acid, N,N'-(methylenedi-4,1-cyclohexanediyl)bis-, 1,1',4,4'-tetraethyl ester NOAEL (parents, generelly toxicity): 200 mg/kg NOAEL (parents, fertility): 1.000 mg/kg NOAEL (offspring): 1.000 mg/kg Test type: Two-generation study Species: rat, male/female Application Route: Oral Dose Levels: 0 - 40 - 200 - 1000 mg/kg Method: OECD Test Guideline 416 Toxicological studies of a comparable product. Aspartic Acid, N,N'-[methylenebis(2-methyl-4,1-cyclohexanediyl)]bis-, 1,1',4,4'-tetraethyl ester NOAEL (parents, generelly toxicity): 200 mg/kg NOAEL (parents, fertility): 1.000 mg/kg NOAEL (offspring): 1.000 mg/kg Test type: Two-generation study Species: rat, male/female Application Route: Oral Dose Levels: 0 - 40 - 200 - 1000 mg/kg Method: OECD Test Guideline 416 **Reproductive toxicity/Teratogenicity** Aspartic Acid, N,N'-(methylenedi-4,1-cyclohexanediyl)bis-, 1,1',4,4'-tetraethyl ester NOAEL (teratogenicity): 1,000 mg/kg NOAEL (maternal): 1,000 mg/kg NOAEL (developmental toxicity): 1.000 mg/kg Species: rat, female Application Route: Oral Dose Levels: 0 - 100 - 300 - 1000 mg/kg Method: OECD Test Guideline 414 Studies of a comparable product. Aspartic Acid, N,N'-[methylenebis(2-methyl-4,1-cyclohexanediyl)]bis-, 1,1',4,4'-tetraethyl ester NOAEL (teratogenicity): 1,000 mg/kg NOAEL (maternal): 1,000 mg/kg NOAEL (developmental toxicity): 1.000 mg/kg Species: rat, female

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2.0 13.01.2020 (replaces the version of 18/10/2019) Application Route: Oral Dose Levels: 0 - 100 - 300 - 1000 mg/kg Method: OECD Test Guideline 414 Genotoxicity in vitro Aspartic Acid, N,N'-(methylenedi-4,1-cyclohexanediyl)bis-, 1,1',4,4'-tetraethyl ester Test type: Salmonella/microsome test (Ames test) Result: No indication of mutagenic effects. Method: OECD Test Guideline 471 Toxicological studies of a comparable product. Test type: Chromosome aberration test in vitro Result: negative Method: OECD Test Guideline 473 Toxicological studies of a comparable product. Aspartic Acid, N,N'-[methylenebis(2-methyl-4,1-cyclohexanediyl)]bis-, 1,1',4,4'-tetraethyl ester Test type: Salmonella/microsome test (Ames test) Result: No indication of mutagenic effects. Method: OECD Test Guideline 471 Test type: Chromosome aberration test in vitro **Result:** negative Method: OECD Test Guideline 473 Genotoxicity in vivo Aspartic Acid, N,N'-(methylenedi-4,1-cyclohexanediyl)bis-, 1,1',4,4'-tetraethyl ester Test type: Micronucleus test Species: Mouse Result: negative Method: OECD Test Guideline 474 Toxicological studies of a comparable product. Aspartic Acid, N,N'-[methylenebis(2-methyl-4,1-cyclohexanediyl)]bis-, 1,1',4,4'-tetraethyl ester Test type: Micronucleus test Species: Mouse Result: negative Method: OECD Test Guideline 474 STOT evaluation - one-time exposure Aspartic Acid, N,N'-(methylenedi-4,1-cyclohexanediyl)bis-, 1,1',4,4'-tetraethyl ester Based on available data, the classification criteria are not met. Aspartic Acid, N,N'-[methylenebis(2-methyl-4,1-cyclohexanediyl)]bis-, 1,1',4,4'-tetraethyl ester Based on available data, the classification criteria are not met. STOT evaluation – repeated exposure Aspartic Acid, N,N'-(methylenedi-4,1-cyclohexanediyl)bis-, 1,1',4,4'-tetraethyl ester Based on available data, the classification criteria are not met. Aspartic Acid, N,N'-[methylenebis(2-methyl-4,1-cyclohexanediyl)]bis-, 1,1',4,4'-tetraethyl ester Based on available data, the classification criteria are not met. Aspiration toxicity Aspartic Acid, N,N'-(methylenedi-4,1-cyclohexanediyl)bis-, 1,1',4,4'-tetraethyl ester Based on available data, the classification criteria are not met. Aspartic Acid, N,N'-[methylenebis(2-methyl-4,1-cyclohexanediyl)]bis-, 1,1',4,4'-tetraethyl ester Based on available data, the classification criteria are not met. **CMR** Assessment Aspartic Acid, N,N'-(methylenedi-4,1-cyclohexanediyl)bis-, 1,1',4,4'-tetraethyl ester Carcinogenicity: Based on available data, the classification criteria are not met. Mutagenicity: In vitro an in vivo tests did not show mutagenic effects. On the basis of this data, the substance is not classified as mutagenic. Teratogenicity: Based on available data, the classification criteria are not met. Reproductive toxicity/Fertility: Based on available data, the classification criteria are not met. Aspartic Acid, N,N'-[methylenebis(2-methyl-4,1-cyclohexanediyl)]bis-, 1,1',4,4'-tetraethyl ester Carcinogenicity: Based on available data, the classification criteria are not met. Mutagenicity: In vitro an in vivo tests did not show mutagenic effects. On the basis of this data, the substance is not classified as mutagenic. Teratogenicity: Based on available data, the classification criteria are not met. Reproductive toxicity/Fertility: Based on available data, the classification criteria are not met. **Toxicology Assessment** Aspartic Acid, N,N'-(methylenedi-4,1-cyclohexanediyl)bis-, 1,1',4,4'-tetraethyl ester Acute effects: Based on available data, the classification criteria are not met. Sensitization: May cause sensitization by skin contact. Repeated dose toxicity: Based on available data, the classification criteria are not met.

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Aspartic Acid, N,N'-[methylenebis(2-methyl-4,1-cyclohexanediyl)]bis-, 1,1',4,4'-tetraethyl ester Acute effects: Based on available data, the classification criteria are not met. Sensitization: May cause sensitization by skin contact. Repeated dose toxicity: Based on available data, the classification criteria are not met

SECTION 12: Ecological information

Do not allow to escape into waterways, wastewater or soil. 12.1 Toxicity **Acute Fish toxicity** Aspartic Acid, N,N'-(methylenedi-4,1-cyclohexanediyl)bis-, 1,1',4,4'-tetraethyl ester LC50 66 mg/l Species: Danio rerio (zebra fish) Exposure duration: 96 h Method: OECD Test Guideline 203 Ecotoxicological reports on a comparable product Aspartic Acid, N,N'-[methylenebis(2-methyl-4,1-cyclohexanediyl)]bis-, 1,1',4,4'-tetraethyl ester LC50 66 mg/l Species: Danio rerio (zebra fish) Exposure duration: 96 h Method: OECD Test Guideline 203 Acute toxicity for daphnia Aspartic Acid, N,N'-(methylenedi-4,1-cyclohexanediyl)bis-, 1,1',4,4'-tetraethyl ester EC50 88.6 mg/l Species: Daphnia magna (Water flea) Exposure duration: 48 h Method: Proposal from the German UBA May 1984 Studies of a comparable product. Aspartic Acid, N,N'-[methylenebis(2-methyl-4,1-cyclohexanediyl)]bis-, 1,1',4,4'-tetraethyl ester EC50 88.6 mg/l Species: Daphnia magna (Water flea) Exposure duration: 48 h Method: Proposal from the German UBA May 1984 Chronic toxicity to daphnia Aspartic Acid, N,N'-(methylenedi-4,1-cyclohexanediyl)bis-, 1,1',4,4'-tetraethyl ester NOEC (Reproduction) 0.01 mg/l Species: Daphnia magna (Water flea) Exposure duration: 21 d Method: Directive 67/548/EEC, Annex V, C.20. Studies of a comparable product. Aspartic Acid, N,N'-[methylenebis(2-methyl-4,1-cyclohexanediyl)]bis-, 1,1',4,4'-tetraethyl ester NOEC (Reproduction) 0.01 mg/l Species: Daphnia magna (Water flea) Exposure duration: 21 d Method: Directive 67/548/EEC, Annex V, C.20. Acute toxicity for algae Aspartic Acid, N,N'-(methylenedi-4,1-cyclohexanediyl)bis-, 1,1',4,4'-tetraethyl ester ErC50 113 mg/l Species: scenedesmus subspicatus Exposure duration: 72 h Method: Directive 67/548/EEC, Annex V, C.3. Ecotoxicological reports on a comparable product Aspartic Acid, N,N'-[methylenebis(2-methyl-4,1-cyclohexanediyl)]bis-, 1,1',4,4'-tetraethyl ester ErC50 113 mg/l Species: scenedesmus subspicatus Exposure duration: 72 h Method: Directive 67/548/EEC, Annex V, C.3. Acute bacterial toxicity Aspartic Acid, N,N'-(methylenedi-4,1-cyclohexanediyl)bis-, 1,1',4,4'-tetraethyl ester EC50 3,110 mg/l Species: activated sludge Exposure duration: 3 h Method: ISO test method 8192-1986 E Ecotoxicological reports on a comparable product Aspartic Acid, N,N'-[methylenebis(2-methyl-4,1-cyclohexanediyl)]bis-, 1,1',4,4'-tetraethyl ester

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2.0 13.01.2020 (replaces the version of 18/10/2019) EC50 3,110 mg/l Species: activated sludge Exposure duration: 3 h Method: ISO test method 8192-1986 E Toxicity to soil dwelling organisms Aspartic Acid, N,N'-(methylenedi-4,1-cyclohexanediyl)bis-, 1,1',4,4'-tetraethyl ester NOEC (mortality) >= 1,000 mg/kg Species: Eisenia fetida (earthworms) Exposure duration: 14 d Method: OECD Test Guideline 207 Studies of a comparable product. Aspartic Acid, N,N'-[methylenebis(2-methyl-4,1-cyclohexanediyl)]bis-, 1,1',4,4'-tetraethyl ester NOEC (mortality) >= 1,000 mg/kg Species: Eisenia fetida (earthworms) Exposure duration: 14 d Method: OECD Test Guideline 207 Toxicity to terrestrial plants Aspartic Acid, N,N'-(methylenedi-4,1-cyclohexanediyl)bis-, 1,1',4,4'-tetraethyl ester NOEC (seedling emergence) >= 100 mg/kg Species: Allium cepa (onion) Test period: 14 d Method: OECD Test Guideline 208 Studies of a comparable product. NOEC (seedling emergence) >= 100 mg/kg Species: Avena sativa (oats) Test period: 14 d Method: OECD Test Guideline 208 Studies of a comparable product. NOEC (seedling emergence) >= 100 mg/kg Species: Brassica napus (rape) Test period: 14 d Method: OECD Test Guideline 208 Studies of a comparable product. Aspartic Acid, N,N'-[methylenebis(2-methyl-4,1-cyclohexanediyl)]bis-, 1,1',4,4'-tetraethyl ester NOEC (seedling emergence) >= 100 mg/kg Species: Avena sativa (oats) Test period: 14 d Method: OECD Test Guideline 208 NOEC (seedling emergence) >= 100 mg/kg Species: Allium cepa (onion) Test period: 14 d Method: OECD Test Guideline 208 NOEC (seedling emergence) >= 100 mg/kg Species: Brassica napus (rape) Test period: 14 d Method: OECD Test Guideline 208 **Ecotoxicology Assessment** Aspartic Acid, N,N'-(methylenedi-4,1-cyclohexanediyl)bis-, 1,1',4,4'-tetraethyl ester Acute aquatic toxicity: Harmful to aquatic life. Chronic aquatic toxicity: Very toxic to aquatic life with long lasting effects. Impact on Sewage Treatment: Because of the low bacterial toxicity, there is no risk of an adverse effect on the performance of biological waste water treatment plants. Aspartic Acid, N,N'-[methylenebis(2-methyl-4,1-cyclohexanediyl)]bis-, 1,1',4,4'-tetraethyl ester Acute aquatic toxicity: Harmful to aquatic life. Chronic aquatic toxicity: Very toxic to aquatic life with long lasting effects. Impact on Sewage Treatment: Because of the low bacterial toxicity, there is no risk of an adverse effect on the performance of biological waste water treatment plants. 12.2 Persistence and degradability **Biodegradability** Aspartic Acid, N,N'-(methylenedi-4,1-cyclohexanediyl)bis-, 1,1',4,4'-tetraethyl ester Biodegradation: 13 %, 28 d, i.e. not readily degradable Method: OECD Test Guideline 301 F Ecotoxicological reports on a comparable product Biodegradation: 0 %, 28 d, i.e. not inherently degradable Method: OECD Test Guideline 302 C

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13.01.2020 (replaces the version of 18/10/2019) 2.0 Ecotoxicological studies of the product Aspartic Acid, N,N'-[methylenebis(2-methyl-4,1-cyclohexanediyl)]bis-, 1,1',4,4'-tetraethyl ester Biodegradation: 13 %, 28 d, i.e. not readily degradable Method: OECD Test Guideline 301 F Biodegradation: 6 %, 28 d, i.e. not inherently degradable Method: OECD Test Guideline 302 C Stability in water Aspartic Acid, N,N'-(methylenedi-4,1-cyclohexanediyl)bis-, 1,1',4,4'-tetraethyl ester Half life: 655 h at 25 °C (pH: 4) Method: OECD Test Guideline 111 Studies of a comparable product. Half life: 25.4 h at 25 °C (pH: 7) Method: OECD Test Guideline 111 Studies of a comparable product. Half life: 16.8 h at 25 °C (pH: 9) Method: OECD Test Guideline 111 Studies of a comparable product. Aspartic Acid, N,N'-[methylenebis(2-methyl-4,1-cyclohexanediyl)]bis-, 1,1',4,4'-tetraethyl ester Test type: Hydrolysis Half life: 655 h at 25 °C (pH: 4) Method: OECD Test Guideline 111 Test type: Hydrolysis Half life: 25.4 h at 25 °C (pH: 7) Method: OECD Test Guideline 111 Test type: Hydrolysis Half life: 16.8 h at 25 °C (pH: 9) Method: OECD Test Guideline 111 Volatility (Henry's Law constant) Aspartic Acid, N.N'-(methylenedi-4,1-cyclohexanediyl)bis-, 1,1',4,4'-tetraethyl ester Calculated value = 0.01 Pa*m3/mol The substance has to be scored as non-volatile from water. Aspartic Acid, N,N'-[methylenebis(2-methyl-4,1-cyclohexanediyl)]bis-, 1,1',4,4'-tetraethyl ester Calculated value = 0.24 Pa*m3/mol The substance has to be scored as being slightly volatile from water. 12.3 Bioaccumulative potential Bioaccumulation Aspartic Acid, N,N'-(methylenedi-4,1-cyclohexanediyl)bis-, 1,1',4,4'-tetraethyl ester Bioconcentration factor (BCF): 1,872 Species: value calculated The substance hydrolyzes rapidly in water. An accumulation in aquatic organisms is not to be expected. Aspartic Acid, N,N'-[methylenebis(2-methyl-4,1-cyclohexanediyl)]bis-, 1,1',4,4'-tetraethyl ester Bioconcentration factor (BCF): value calculated 8,228 The substance hydrolyzes rapidly in water. An accumulation in aquatic organisms is not to be expected. 12.4 Mobility in soil Distribution among environmental compartments Aspartic Acid, N,N'-(methylenedi-4,1-cyclohexanediyl)bis-, 1,1',4,4'-tetraethyl ester Adsorption/Soil log Koc value: 4.2 - 5.1 Method: EU Method C.19 Studies of a comparable product. Surface tension ca. 63.9 mN/m at 20 °C Method: OECD Test Guideline 115 Aspartic Acid, N,N'-[methylenebis(2-methyl-4,1-cyclohexanediyl)]bis-, 1,1',4,4'-tetraethyl ester Adsorption/Soil log Koc value: 4.2 - 5.1 Method: EU Method C.19 12.5 Results of PBT and vPvB assessment Aspartic Acid, N.N'-(methylenedi-4,1-cyclohexanediyl)bis-, 1,1',4,4'-tetraethyl ester This substance does not meet the criteria for classification as PBT or vPvB. Aspartic Acid, N,N'-[methylenebis(2-methyl-4,1-cyclohexanediyl)]bis-, 1,1',4,4'-tetraethyl ester This substance does not meet the criteria for classification as PBT or vPvB.

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No data available.

SECTION 13: Disposal considerations

Dispose in accordance with applicable international, national and local laws, ordinances and statutes. For disposal within the EC, the appropriate code according to the European Waste Catalogue (EWC) should be used.

13.1 Waste treatment methods

After containers have been emptied as thoroughly as possible (e.g. by pouring, scraping or draining until "drip-dry"), they can be sent to an appropriate collection point set up within the framework of the existing take-back scheme of the chemical industry. Containers must be recycled in compliance with national legislation and environmental regulations.

None disposal into waste water.

SECTION 14: Transport information

ADR/RID

14.1 UN number 14.2 UN proper shipping name 14.3 Transport hazard class(es) 14.4 Packing group 14.5 Environmental hazards	 Not dangerous goods
ADN	
14.1 UN number	: Not dangerous goods
14.2 UN proper shipping name	: Not dangerous goods
14.3 Transport hazard class(es)	: Not dangerous goods
14.4 Packing group	: Not dangerous goods
14.5 Environmental hazards	: Not dangerous goods
ΙΔΤΔ	
14.1 UN number	: Not dangerous goods
14.2 UN proper shipping name	: Not dangerous goods
14.3 Transport hazard class(es)	: Not dangerous goods
14.4 Packing group	: Not dangerous goods
14.5 Environmental hazards	: Not dangerous goods
IMDG	
14.1 UN number	· Not dangerous goods
14.2 UN proper shipping name	: Not dangerous goods
14.3 Transport hazard class(es)	: Not dangerous goods
14.4 Packing group	: Not dangerous goods
14.5 Environmental hazards	: Not dangerous goods

14.6 Special precautions for user

See section 6 - 8.

Additional information	: Not dangerous cargo.
	Keep dry.
	Keep away from foodstuffs, acids and alkalis.

14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

Not applicable.

SECTION 15: Regulatory information

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

Directive 2012/18/EU on the control of major-accident hazards involving dangerous substances. not applicable

Water contaminating class (Germany)

1 slightly water endangering

(in accordance with Annex 4 to the Directive on Water-Hazardous Substances)

according to Regulation (EU) No. 1907/2006

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Any national regulations for the handling of hazardous substances must be observed.

15.2 Chemical Safety Assessment

A Chemical Safety Assessment has been carried out for:

Aspartic Acid, N,N[']-(methylenedi-4,1-cyclohexanediyl)bis-, 1,1',4,4'-tetraethyl ester Aspartic Acid, N,N'-[methylenebis(2-methyl-4,1-cyclohexanediyl)]bis-, 1,1',4,4'-tetraethyl ester

SECTION 16: Other information

Full text of the hazard statements of the CLP classification (1272/2008/CE) referred to under sections 2, 3 and 10.

H302	Harmful if swallowed.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H335	May cause respiratory irritation.
H412	Harmful to aquatic life with long lasting effects.

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Advice for the reader

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THE PRODUCT MAY PRESENT HAZARDS AND SHOULD BE USED WITH CAUTION. WHILE CERTAIN HAZARDS ARE DESCRIBED IN THIS PUBLICATION, NO GUARANTEE IS MADE THAT THESE ARE THE ONLY HAZARDS THAT EXIST.

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