1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Identification of the product

Substance name:
REACH Registration Name: 2-(dimethylamino)ethyl acrylate
REACH Registration Number: 01-2119451172-49-0001
EC Nr: 219-460-0
CAS-No.: 2439-35-2

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

Use of the Substance/Mixture : Synthesis intermediate.
The substance is registered as an isolated intermediate with strictly controlled conditions as defined in Article 18(4) of Regulation EC No. 1907/2006 and must therefore be handled as such.

1.3. Details of the supplier of the safety data sheet

Supplier	Arkema ACRYLIQUES 420 rue d'Estienne d'Orves 92705 Colombes Cedex, France Téléphone : +33 (0)1 49 00 80 80 Télécopie : +33 (0)1 49 00 83 96 http://www.arkema.com
E-mail address	pars-drp-fds@arkema.com

1.4. Emergency telephone number

+33 1 49 00 77 77
European emergency phone number : 112

2. HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

Classification (Regulation (EC) No 1272/2008):
Oral: Acute toxicity, 4, H302
Dermal: Acute toxicity, 3, H311
Inhalation: Acute toxicity, 1, H330
Serious eye damage, 1, H318
Skin corrosion, 1B, H314
Skin sensitization, 1A, H317
Acute aquatic toxicity, 1, H400
Chronic aquatic toxicity, 3, H412
M-Factor: Acute = 1

Classification (Directive 67/548/EEC):

T+; R26
C; R34
Xn; R21/22
Xi; R43
N; R50

Additional information:
For the full text of the R, H, EUH-phrases mentioned in this Section, see Section 16.

2.2. Label elements

Label elements (REGULATION (EC) No 1272/2008):

Hazardous components which must be listed on the label:

CAS-No. : 2439-35-2 2-(Dimethylamino)ethyl acrylate

Hazard pictograms:

Signal word: **Danger**

Hazard statements:
H302 : Harmful if swallowed.
H311 : Toxic in contact with skin.
H330 : Fatal if inhaled.
H314 : Causes severe skin burns and eye damage.
H317 : May cause an allergic skin reaction.
H400 : Very toxic to aquatic life.
H412 : Harmful to aquatic life with long lasting effects.

Precautionary statements:
Prevention:
P210 : Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P260 : Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P273 : Avoid release to the environment.
P280 : Wear protective gloves/ protective clothing/ eye protection/ face protection.
Response:
P304 + P340 : IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P303 + P361 + P353 : IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P305 + P351 + P338 : IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 : Immediately call a POISON CENTER or doctor/ physician.
Storage:
P403 + P233 : Store in a well-ventilated place. Keep container tightly closed.

2.3. Other hazards

Potential health effects:

May produce an allergic reaction. Risk of severe irritation of respiratory system

Acute exposure: Corrosive
Inhalation: Very toxic by inhalation. At high dose : Risk of pulmonary oedema
Ingestion: Risk of burns to the mouth, oesophagus and stomach

Environmental Effects:
Toxic to aquatic fauna. Very toxic to aquatic flora. May cause long-term adverse effects in the aquatic environment. Readily biodegradable. Rapid hydrolysis Practically not bioaccumulable

Physical and chemical hazards:
Flammable liquid (when hot). Polymerization is exothermic and can degenerate into an uncontrolled reaction. Thermal decomposition giving toxic products.
Decomposition products: See chapter 10

Other:
Results of PBT and vPvB assessment : As defined in Article 18(4) of Regulation (EC) No. 1907/2006 (REACH Regulation), this substance is registered as an isolated intermediate. Therefore, the data is not required.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances

Chemical name of the substance[1]**:** DIMETHYLAMINOETHYL ACRYLATE (ADAME)

Chemical Name[1]	EC-No.	CAS-No.	Concentration	Classification Directive 67/548/EEC	Classification Regulation (EC) No 1272/2008
2-(Dimethylamino)ethyl acrylate	219-460-0	2439-35-2	>= 99,5 %	T+; R26 C; R34 Xn; R21/22 Xi; R43 N; R50	Acute Tox. 4 (Oral); H302 Acute Tox. 3 (Dermal); H311 Acute Tox. 1 (Inhalation); H330 Eye Dam. 1; H318 Skin Corr. 1B; H314 Skin Sens. 1A; H317 Aquatic Acute 1; H400 Aquatic Chronic 3; H412 M-Factor Acute = 1

[1]: See chapter 14 for Proper Shipping Name

4. FIRST AID MEASURES

4.1. & 4.2. Description of necessary first-aid measures & Most important symptoms/effects, acute and delayed:

General advice:
Under the shower: Take off immediately all contaminated clothing (including shoes).

Inhalation:
Inhalation of mists Move to fresh air. Oxygen or artificial respiration if needed. Hospitalize immediately.

Skin contact:
Wash off immediately with plenty of water. Consult a doctor quickly. In case of extensive burns: Hospitalize immediately.

Eye contact:
Wash open eyes immediately, abundantly and thoroughly for at least 15 minutes. Consult an ophthalmologist immediately.

Ingestion:
Do not induce vomiting, rinse mouth and lips with plenty of water if the subject is conscious, then hospitalize.

Protection of first-aiders:
Protective suit. Wear suitable respiratory equipment.

4.3.Indication of immediate medical attention and special treatment needed, if necessary : No data available.

5. FIREFIGHTING MEASURES

5.1.Extinguishing media

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

5.2. Special hazards arising from the substance or mixture:
Flammable liquid (when hot)., Polymerization is exothermic and can degenerate into an uncontrolled reaction.
Thermal decomposition giving toxic products:, Cyanides, nitrogen oxides (NOx)

5.3. Advice for firefighters:

Specific methods:
Remove all sources of ignition. Cool containers / tanks with water spray.

Special protective actions for fire-fighters:
Wear self-contained breathing apparatus and protective suit. Complete suit protecting against chemicals.

6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures:
Prohibit all sources of sparks and ignition - Do not smoke. Prohibit contact with skin and eyes and inhalation of vapours. Evacuate non-essential staff and those not equipped with individual protection apparatus. In case of leak, wear a self-contained breathing apparatus. Complete suit protecting against chemicals

6.2. Environmental precautions:
Do not let product enter drains. Dam up with sand or inert earth (do not use combustible materials).

6.3. Methods and materials for containment and cleaning up:

Recovery:

Pump into a labelled inert emergency tank. Absorb the remainder with an inert absorbent material. Rinse with water. Recover waste water for processing later.

Elimination:
Destroy the product by incineration (in accordance with local and national regulations).

6.4. Reference to other sections: None.

7. HANDLING AND STORAGE

7.1. Precautions for safe handling:

Technical measures/Precautions:
Storage and handling precautions applicable to products: Liquid. Flammable (when hot). Very toxic by inhalation. Corrosive. Provide appropriate exhaust ventilation at machinery. Provide showers, eye-baths. Provide water supplies near the point of use. To allow close by. Self contained Breathing Apparatus
Well ventilate empty vats and tanks before entering.

Safe handling advice:
Use product only in closed system. Transfer by pump or atmospheric pressure containing between 5 and 21% of oxygen Use only explosion-proof equipment. Prohibit all sources of sparks and ignition - Do not smoke.

Hygiene measures:
Prohibit contact with skin and eyes and inhalation of vapours. When using do not eat, drink or smoke.
Wash hands after handling. Remove contaminated clothing and protective equipment before entering eating areas.

7.2. Conditions for safe storage, including any incompatibilities:

Store under air atmosphere. Keep in a cool, well-ventilated place. Protect against light. Keep away from heat and sources of ignition. Do not smoke. Control free oxygen level : free oxygen is essential to stabilize the product. Keep stabilizer levels constant to avoid explosive polymerization. Provide a catch-tank in a bunded area. Provide electrical earthing of equipment and electrical equipment usable in explosive atmospheres. Monitor the product clarity. Check the temperature regularly.

Storage temperature: < 30 °C

Packaging material:
Recommended: Stainless steel, High density polyethylene (HDPE), Polypropylene, Aluminium, Protected glass (for small quantities)
To be avoided: Ordinary steel, copper, Rubber

7.3. Specific end uses:

This substance must be handled under strictly controlled conditions in accordance with REACH regulation Article 18(4) for on-site isolated intermediates. Written confirmation of application of strictly controlled conditions has been received from every Downstream User of the intermediate registered by Arkema.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters:

Exposure Limit Values

2-(Dimethylamino)ethyl acrylate

Source	Date	Value type	Value (ppm)	Value (mg/m3)	Remarks
ARKEMA		STEL	1	5,8	Value recommended by the "Exposure Limit Value Committee" of ARKEMA
ARKEMA		TWA	0,5	2,9	Value recommended by the "Exposure Limit Value Committee" of ARKEMA

Derived No Effect Level (DNEL):
As defined in Article 18(4) of Regulation (EC) No. 1907/2006 (REACH Regulation), this substance is registered as an isolated intermediate. Therefore, the data is not required.

Predicted No Effect Concentration (PNEC):
As defined in Article 18(4) of Regulation (EC) No. 1907/2006 (REACH Regulation), this substance is registered as an isolated intermediate. Therefore, the data is not required.

8.2. Exposure controls:

General protective measures:
Ensure sufficient air exchange and/or exhaust in work areas
On each manufacture or use site, clearly-written substance-handling procedures should be available, kept up-to-date and their implementation controlled.
Use material of high integrity for loading and unloading.
Investigate engineering techniques to reduce exposures.
Routine monitoring and inspections for leaks to reduce fugitive emissions.
Frequently monitor and control the working atmosphere.

Personal protective equipment:

Respiratory protection: Low concentrations or short activity: Self contained Breathing Apparatus
High concentrations or prolonged activity: Self contained Breathing Apparatus

Hand protection: Splash contact, intermittent and prolonged Neoprene gloves Glove thickness: 1,1 mm
According to permeation index EN 374: 5 (time elapsed > 240 mins)

Eye/face protection: Safety glasses

Skin and body protection: At the workplace : Protective suit
Intervention at incident: anti-acid suit

Environmental exposure controls:
Do not release into the environment.
Use techniques to minimize emissions (incineration or any treatment to minimize level of release).

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Appearance:	
Physical state (20°C):	liquid
Colour:	colourless, light yellow
Odour:	Sour
Olfactory threshold:	No data available.
pH:	No data available.
Melting point/range :	< -61 °C
Boiling point/boiling range :	172,8 °C (Pressure 1.013,25 hPa)
Flash point:	closed cup: 60,5 °C (A9 Method (D. 92/69/ECC))
Evaporation rate:	No data available.
Flammability (solid, gas):	
Lower flammable limit :	1,3 %(V)
Vapour pressure:	1 hPa , at 19,1 °C
	2 hPa , at 28,5 °C
	10 hPa , at 54 °C
	50 hPa , at 85,7 °C
Vapour density:	No data available.
Density:	938 kg/m3 , at 20 °C
Relative density (Water=1):	0,938 at 20 °C
Water solubility:	hydrolyses
Partition coefficient: n-octanol/water:	log Kow : 0,68 , at 25 °C (OECD Test Guideline 107)
	log Kow : 0,425 , at 25 °C (calculated)
Autoignition temperature:	195 °C
Decomposition temperature:	No data available.
Viscosity, kinematic:	1,43 mm2/s , at 20 °C
	1,04 mm2/s , at 40 °C
Viscosity, dynamic:	1,34 mPa.s , at 20 °C
	0,96 mPa.s , at 40 °C
Explosive properties:	
Explosivity:	Not relevant (due to the chemical structure)
Oxidizing properties:	Not relevant (due to the chemical structure)

9.2. Other data:

Solubility in other solvents:	Soluble in: , Ethanol
pKA:	8,41 (calculated)
Henry constant:	2,3E-03 $Pa.m^3/mol$, at 25 °C (calculated)
Molecular Weight:	143 g/mol

10. STABILITY AND REACTIVITY

10.1. & 10.2. Reactivity & Chemical stability:
Presence of a polymerization inhibitor: p-Methoxyphenol (Hydroquinone monomethyl Ether) or hydroquinone
The product is stable if inhibitor concentration is maintained at : (Concentration: 750 ppm)

10.3. Possibility of hazardous reactions: No data available.

10.4. Conditions to avoid:
Protect from light. Protect from heat.

10.5. Incompatible materials to avoid:
Peroxides, Acids, Bases, Strong oxidizing agents
Risk of : Explosive reaction, Exothermic reaction

10.6. Hazardous decomposition products:
Thermal decomposition giving toxic products:, nitrogen oxides (NOx), Cyanides

11. TOXICOLOGICAL INFORMATION

All available data on this product and/or the components quoted in section 3 and/or the analogue substances/metabolites have been taken into account for the hazard assessment.

11.1. Information on toxicological effects:

Acute toxicity:

Inhalation:	**Very toxic by inhalation.**
• In man :	Possible serious disorders., Irritating to eyes and respiratory system, Risk of pulmonary oedema
• In animals :	LC50/4 h/rat: 0,22 mg/l (Method: OECD Test Guideline 403) (vapour) LC50/1 h/rat: 0,97 mg/l (Method: OECD Test Guideline 403) (vapour)
Ingestion:	**Harmful if swallowed.**
• In man :	Risk of burns in the mouth, the throat and in the stomach.
• In animals :	LD50/rat: 455 mg/kg (Method: OECD Test Guideline 401)
Dermal:	**Toxic in contact with skin.**
• In animals :	LD50/rat: 419 mg/kg (Method: OECD Test Guideline 402)

Local effects (Corrosion / Irritation / Serious eye damage):

Skin contact:	**Corrosive to skin**
• In man :	Direct contact with product :, Can cause dermatosis and burns.
• In animals :	Corrosive (OECD Test Guideline 404, rabbit, Exposure time: 1 h)
Eye contact:	**Causes serious eye damage.**
• In man :	Direct contact with product :, Risk of, Corneal opacity
• In animals :	Severe eye irritation (OECD Test Guideline 405, rabbit)

Respiratory or skin sensitization:

Inhalation:	No data available.
Skin contact:	**Strong skin sensitizer**
• In man :	Possible cross sensitization with other acrylates and methacrylates
• In animals :	Strong sensitizing effects by skin contact. (Method : OECD Test Guideline 406 Guinea pig maximization test)

CMR effects :

Mutagenicity:	**Overall not genotoxic**

In vitro

Ames test in vitro: Inactive (Method: OECD Test Guideline 471)
Chromosome aberration test in vitro: Active (Method: OECD Test Guideline 473)
In vitro gene mutations test on mammalian cells: Inactive (Method: OECD Test Guideline 476)

In vivo

Micronucleus test in vivo mouse: Inactive (Method: OECD Test Guideline 474)

Carcinogenicity: No data available.

Reproductive toxicity:

Fertility: **Based on the available data, the substance is not suspected of having reprotoxic potential.**
• In animals : No toxic effects for reproduction, NOAEL: > 100 mg/kg (Method: OECD Test Guideline 422, rat, By oral route)

Foetal development: **Based on the available data, the substance is not suspected of having developmental toxicity potential.**
• In animals : Exposure during pregnancy: Absence of toxic effects for foetal development at non toxic maternal doses, NOAEL: 10 mg/kg/d Maternal concentration without effect: 10 mg/kg/d (Method: OECD Test Guideline 414, rat, By oral route)

Specific target organ toxicity :
Single exposure : **The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with respiratory tract irritation.**
Exposure routes : Inhalation
Target Organs : respiratory tract

Inhalation:
• In man : Risk of severe irritation of respiratory system
Risk of pulmonary oedema
• In animals : Irritating to ocular and respiratory mucous membranes. , rat (vapour)

Repeated exposure: **The substance or mixture is not classified as specific target organ toxicant, repeated exposure.**
• In animals : By oral route: No adverse systemic effects reported.
At high dose :, Irritation of the gastric mucosa, NOAEL= 10mg/kg bw/day (Method: OECD Test Guideline 408, rat, Subchronic, 13 Weeks)

Aspiration hazard: Not applicable

12. ECOLOGICAL INFORMATION

Ecotoxicology Assessment: All available data on this product and/or the components quoted in section 3 and/or the analogue substances/metabolites have been taken into account for the hazard assessment.

12.1. Toxicity

Fish: **Toxic to fish.**
LC50, 96 h (Oryzias latipes) : 8,49 mg/l (Method: OECD Test Guideline 203, pH: 7,3 - 8,8)
LC50, 96 h (Leuciscus idus) : 10,1 mg/l (Method: Standard : DIN 38412-15, pH: 7,3 - 8,0)

Aquatic invertebrates: **Toxic to daphnia.**
EC50, 48 h (Daphnia magna (Water flea)) : 9,92 mg/l (Method: OECD Test Guideline 202, pH: 7,8 - 8,6)

Aquatic plants: **Very toxic to algae.**
EC50, 72 h (Desmodesmus subspicatus (green algae)) : 0,88 mg/l (Method: No information available., pH: 8,1 - 9,5, Growth inhibition)

Microorganisms:
EC10, 17 h (Pseudomonas putida) : 211 mg/l (Method: Standard : DIN 38412 - Part 8)

Aquatic toxicity / Long term toxicity:

Fish:
Lowest observed effect concentration, 14 d (Oryzias latipes) : 3,2 mg/l (Method: OECD Test Guideline 204, pH: 7,1 - 8,1)

Aquatic invertebrates:
NOEC, 21 d (Daphnia magna (Water flea)) : 3 mg/l (Method: OECD Test Guideline 211)

Aquatic plants:
EC10, 72 h (Desmodesmus subspicatus (green algae)) : 0,25 mg/l (pH: 8,1 - 9,5, Growth inhibition)

M-Factor: Acute = 1

12.2. Persistence and degradability :

In water: **Rapid hydrolysis**

Stability in water:
: Half-life: 12,5 h at 25 °C and pH 7
: Half-life: 2,18 h at 25 °C and pH 8,3
: Half-life: 1,21 h at 25 °C and pH 9

Biodegradation (In water): **Readily biodegradable**
96 % after 28 d (Method: Standard : ISO 7827)

12.3. Bioaccumulative potential :

Bioaccumulation: **Practically not bioaccumulable**
Partition coefficient: n-octanol/water: log Kow : 0,68 , at 25 °C (Method: OECD Test Guideline 107)
Partition coefficient: n-octanol/water: log Kow : 0,425 , at 25 °C (Method: calculated)

12.4. Mobility in soil - Distribution among environmental compartments:

Henry constant:
2,3E-03 Pa.m^3/mol, 25 °C, (Method: calculated)

Absorption / desorption:
Strong adsorption
log Koc: 3,15 - 3,82 (Method: calculated)

12.5. Results of PBT and vPvB assessment :

As defined in Article 18(4) of Regulation (EC) No. 1907/2006 (REACH Regulation), this substance is registered as an isolated intermediate. Therefore, the data is not required.

12.6. Other adverse effects: None known.

13. DISPOSAL CONSIDERATIONS

13.1. Waste treatment:

Disposal of product: Destroy the product by incineration (in accordance with local and national regulations).

Disposal of packaging: Steam clean packaging. Destroy packaging by incineration at an approved waste disposal site. In accordance with local and national regulations.

14. TRANSPORT INFORMATION

Regulation	UN number	Proper shipping name	Class	Label	PG	Environmentally hazardous	Other information
ADR	3302	2-DIMETHYLAMINOETHYL ACRYLATE	6.1	6.1	II	yes	
RID	3302	2-DIMETHYLAMINOETHYL ACRYLATE	6.1	6.1	II	yes	
IATA Cargo	3302	2-Dimethylaminoethyl acrylate	6.1	6.1	II	yes	
IATA Passenger	3302	2-Dimethylaminoethyl acrylate	6.1	6.1	II	yes	
IMDG	3302	2-DIMETHYLAMINOETHYL ACRYLATE	6.1	6.1	II	Marine pollutant	EmS Number: F-A, S-A Mark: MP

15. REGULATORY INFORMATION

Safety data sheets: according to Regulation (EC) No. 1907/2006
15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture:

15.2. Chemical Safety Assessment:

As defined in Article 18(4) of Regulation (EC) No. 1907/2006 (REACH Regulation), this substance is registered as an isolated intermediate. Therefore, a chemical safety report is not required.

INVENTORIES:

EINECS:	Conforms to
TSCA:	Conforms to
AICS:	Conforms to
DSL:	This product contains one or several components listed in the Canadian NDSL list. All other components are on the DSL list.
ENCS (JP):	Conforms to
KECI (KR):	Conforms to
PICCS (PH):	Conforms to
IECSC (CN):	Conforms to
NZIOC:	Conforms to

16. OTHER INFORMATION

Full text of R, H, EUH-phrases referred to under sections 2 and 3

R21/22	Harmful in contact with skin and if swallowed.
R26	Very toxic by inhalation.
R34	Causes burns.
R43	May cause sensitization by skin contact.
R50	Very toxic to aquatic organisms.
H302	Harmful if swallowed.
H311	Toxic in contact with skin.
H314	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H330	Fatal if inhaled.
H400	Very toxic to aquatic life.
H412	Harmful to aquatic life with long lasting effects.

Further information This product must be handled only by personnel well informed of safety conditions.

Update:

Safety datasheet sections which have been updated:		Type:
2	Classification and labelling, Environmental Effects	Additions, Revisions
3	Classification and labelling	Additions, Revisions
5	Special hazards arising from the substance or mixture	Revisions
7	Safe handling advice, Storage	Revisions
9	Partition coefficient: n-octanol/water, pKA, Flash point	Additions, Revisions
11	Acute toxicity, Local effects, Sensitisation, Specific Target Organ Toxicant, Aspiration hazard	Additions, Revisions
12	Distribution among environmental compartments	Deletions
12	Aquatic plants, Microorganisms, Fish, Bioaccumulation, Absorption / desorption	Additions, Revisions

Thesaurus:

NOAEL : No Observed Adverse Effect Level (NOAEL)
LOAEL : Lowest Observed Adverse Effect Level (LOAEL)
bw : Body weight
food : oral feed
dw : Dry weight
vPvB : very Persistent and very Bioaccumulative
PBT : Persistent, Bioaccumulative and Toxic

This information applies to the PRODUCT AS SUCH and conforming to specifications of ARKEMA. In case of formulations or mixtures, it is necessary to ascertain that a new danger will not appear. The information contained is based on our knowledge of the product, at the date of publishing and it is given quite sincerely. Users are advised of possible additional hazards when the product is used in applications for which it was not intended. This sheet shall only be used and reproduced for prevention and security purposes. The references to legislative, regulatory and codes of practice documents cannot be considered as exhaustive. It is the responsibility of the person receiving the product to refer to the totality of the official documents concerning the use, the possession and the handling of the product. It is also the responsibility of the handlers of the product to pass on to any subsequent persons who will come into contact with the product (usage, storage, cleaning of containers, other processes) the totality of the information contained within this safety data sheet and necessary for safety at work, the protection of health and the protection of environment.

NB: In this document the numerical separator of the thousands is the "." (point), the decimal separator is "," (comma).