

**SAFETY DATA SHEET**

Revision Date: 03/24/2020

Print Date: 04.28.2020

SDS Number: R0402387

Version: 7.3

Derakane Momentum™ 470-300 epoxy vinyl ester resin
™ Trademark, INEOS or its subsidiaries, registered in various countries
40212

1. PRODUCT AND COMPANY IDENTIFICATION**Product identifier**

Trade name : Derakane Momentum™ 470-300 epoxy vinyl ester resin
™ Trademark, INEOS or its subsidiaries, registered in various countries

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

Recommended use : Industrial chemical

Details of the supplier of the safety data sheet

Shanghai INEOS Composites Co., Ltd.
Unit 1801B of Xuhuiyuan Building No 1089,
South Zhongshan NO. 2 Road
Shanghai 200030
China

上海英力士复合材料有限公司
上海市中山南二路1089号徐汇苑大厦18楼1801B
上海 200030
中国

sds.composites@ineos.com

Emergency telephone number

1-800-424-9300 (+1-703-527-3887 for direct dial), or call the local emergency number 0532 8388 9090 (China)

Regulatory Information Number

021 2402 4688 (in China), or contact your local customer service representative

Product Information

+021 2402 4688

2. HAZARDS IDENTIFICATION**GHS Classification**

Flammable liquids : Category 3
Acute toxicity (Inhalation) : Category 5
Skin corrosion/irritation : Category 2
Serious eye damage/eye irritation : Category 2A
Specific target organ toxicity - single exposure : Category 3 (respiratory tract irritation)

INEOS

SAFETY DATA SHEET

Revision Date: 03/24/2020

Print Date: 04.28.2020

SDS Number: R0402387

Version: 7.3

Derakane Momentum™ 470-300 epoxy vinyl ester resin
 ™ Trademark, INEOS or its subsidiaries, registered in various countries
 40212

Specific target organ toxicity - repeated exposure (Inhalation) : Category 1 (Auditory system)

Short-term (acute) aquatic hazard : Category 2

GHS label elements

Hazard pictograms :



Signal word : Danger

Hazard statements : H226 Flammable liquid and vapour.
 H315 Causes skin irritation.
 H319 Causes serious eye irritation.
 H333 May be harmful if inhaled.
 H335 May cause respiratory irritation.
 H372 Causes damage to organs (Auditory system) through prolonged or repeated exposure if inhaled.
 H401 Toxic to aquatic life.

Precautionary statements : **Prevention:**
 P210 Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.
 P233 Keep container tightly closed.
 P240 Ground/bond container and receiving equipment.
 P241 Use explosion-proof electrical/ ventilating/ lighting equipment.
 P242 Use only non-sparking tools.
 P243 Take precautionary measures against static discharge.
 P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
 P264 Wash skin thoroughly after handling.
 P270 Do not eat, drink or smoke when using this product.
 P271 Use only outdoors or in a well-ventilated area.
 P273 Avoid release to the environment.
 P280 Wear protective gloves/ eye protection/ face protection.
Response:
 P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
 P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.
 P305 + P351 + P338 IF IN EYES: Rinse cautiously with water

INEOS

SAFETY DATA SHEET

Revision Date: 03/24/2020

Print Date: 04.28.2020

SDS Number: R0402387

Version: 7.3

Derakane Momentum™ 470-300 epoxy vinyl ester resin
 ™ Trademark, INEOS or its subsidiaries, registered in various countries
 40212

for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P314 Get medical advice/ attention if you feel unwell.

P332 + P313 If skin irritation occurs: Get medical advice/ attention.

P337 + P313 If eye irritation persists: Get medical advice/ attention.

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

P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

Storage:

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.

P403 + P235 Store in a well-ventilated place. Keep cool.

P405 Store locked up.

Disposal:

P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards which do not result in classification

No information available.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Hazardous components

Chemical name	CAS-No. Registration number	Classification	Concentration (%)
STYRENE	100-42-5	Flam. Liq. 3; H226 Acute Tox. 5; H303 Acute Tox. 4; H332 Skin Corr. 2; H315 Eye Dam. 2A; H319 STOT SE 3; H335 STOT RE 1; H372 Asp. Tox. 1; H304 Aquatic Acute 2; H401	>= 30.00 - < 50.00
METHACRYLIC ACID	79-41-4	Flam. Liq. 4; H227 Acute Tox. 4; H302 Acute Tox. 4; H332 Acute Tox. 3; H311 Skin Corr. 1A; H314 Eye Dam. 1; H318 STOT SE 3; H335 Aquatic Acute 3; H402	>= 1.00 - < 2.50

INEOS

SAFETY DATA SHEET

Revision Date: 03/24/2020

Print Date: 04.28.2020

SDS Number: R0402387

Version: 7.3

Derakane Momentum™ 470-300 epoxy vinyl ester resin
 ™ Trademark, INEOS or its subsidiaries, registered in various countries
 40212

QUATERNARY AMMONIUM SALT	75-57-0	Acute Tox. 2; H300 Acute Tox. 3; H311 Skin Corr. 2; H315 STOT SE 1; H370 Aquatic Acute 3; H402 Aquatic Chronic 2; H411	>= 0.10 - < 0.25
--------------------------	---------	---	------------------

4. FIRST AID MEASURES

- General advice : Move out of dangerous area.
Call a POISON CENTRE or doctor/physician if exposed or you feel unwell.
Show this safety data sheet to the doctor in attendance.
Do not leave the victim unattended.
- If inhaled : Move to fresh air.
IF INHALED: Call a POISON CENTER/ doctor if you feel unwell.
Keep patient warm and at rest.
If unconscious, place in recovery position and seek medical advice.
- In case of skin contact : Remove contaminated clothing. If irritation develops, get medical attention.
If on skin, rinse well with water.
Wash contaminated clothing before re-use.
If on clothes, remove clothes.
- In case of eye contact : Immediately flush eye(s) with plenty of water.
Remove contact lenses.
Protect unharmed eye.
- If swallowed : Obtain medical attention.
Do not give milk or alcoholic beverages.
Never give anything by mouth to an unconscious person.
If symptoms persist, call a physician.
- Most important symptoms and effects, both acute and delayed : Causes skin irritation.
Causes serious eye irritation.
May be harmful if inhaled.
May cause respiratory irritation.
Causes damage to organs through prolonged or repeated exposure if inhaled.
Signs and symptoms of exposure to this material through breathing, swallowing, and/or passage of the material through the skin may include:

SAFETY DATA SHEET

Revision Date: 03/24/2020

Print Date: 04.28.2020

SDS Number: R0402387

Version: 7.3

Derakane Momentum™ 470-300 epoxy vinyl ester resin
 ™ Trademark, INEOS or its subsidiaries, registered in various countries
 40212

Notes to physician : stomach or intestinal upset (nausea, vomiting, diarrhea)
 irritation (nose, throat, airways)
 confusion
 : No hazards which require special first aid measures.

5. FIREFIGHTING MEASURES

- Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
 Water spray
 Foam
 Alcohol-resistant foam
 Carbon dioxide (CO2)
 Dry chemical
- Unsuitable extinguishing media : High volume water jet
- Specific hazards during firefighting : Organic dusts at sufficient concentration can form explosive mixtures in air.
 Never use welding or cutting torch on or near drum (even empty) because product (even just residue) can ignite explosively.
 Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
 Do not allow run-off from fire fighting to enter drains or water courses.
- Hazardous combustion products : Carbon dioxide (CO2)
 Carbon monoxide
 Hydrocarbons
 Acrylic monomers
- Specific extinguishing methods : Do not use a solid water stream as it may scatter and spread fire.
 Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
 Use a water spray to cool fully closed containers.
 Product is compatible with standard fire-fighting agents.
- Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Evacuate personnel to safe areas.
 Remove all sources of ignition.
 Use personal protective equipment.

INEOS

SAFETY DATA SHEET

Revision Date: 03/24/2020

Print Date: 04.28.2020

SDS Number: R0402387

Version: 7.3

Derakane Momentum™ 470-300 epoxy vinyl ester resin
 ™ Trademark, INEOS or its subsidiaries, registered in various countries
 40212

Ensure adequate ventilation.
 Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas. Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed. Comply with all applicable federal, state, and local regulations. Suppress (knock down) gases/vapours/mists with a water spray jet.

- Environmental precautions : Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities.
- Methods and materials for containment and cleaning up : Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).
- Prevention of secondary hazards : Comply with all applicable federal, state, and local regulations. Suppress (knock down) gases/vapours/mists with a water spray jet.

7. HANDLING AND STORAGE

Handling

- Advice on protection against fire and explosion : Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapours). No sparking tools should be used. Keep away from open flames, hot surfaces and sources of ignition. Use only explosion-proof equipment.
- Advice on safe handling : Open drum carefully as content may be under pressure. Avoid formation of aerosol. Provide sufficient air exchange and/or exhaust in work rooms. Do not breathe vapours/dust. Do not smoke. Container hazardous when empty. Take precautionary measures against static discharges. Avoid exposure - obtain special instructions before use. Avoid contact with skin and eyes. Smoking, eating and drinking should be prohibited in the application area. For personal protection see section 8.



SAFETY DATA SHEET

Revision Date: 03/24/2020

Print Date: 04.28.2020

SDS Number: R0402387

Version: 7.3

Derakane Momentum™ 470-300 epoxy vinyl ester resin
 ™ Trademark, INEOS or its subsidiaries, registered in various countries
 40212

Dispose of rinse water in accordance with local and national regulations.
 Secondary operations, such as grinding and sanding, may produce dust.
 Maintain good housekeeping. Do not permit dust layers to accumulate, for example, on floors, ledges, and equipment, in order to avoid any potential for dust explosion hazards.

Avoidance of contact : Acids
 aluminum
 aluminum chloride
 Amines
 Bases
 Copper
 Copper alloys
 halogens
 iron chloride
 metal salts
 Oxidizing agents
 Peroxides

Storage

Conditions for safe storage : Keep container tightly closed in a dry and well-ventilated place.
 Containers which are opened must be carefully resealed and kept upright to prevent leakage.
 Observe label precautions.
 No smoking.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
STYRENE	100-42-5	PC-TWA	50 mg/m ³	GBZ 2.1-2007
		PC-STEL	100 mg/m ³	GBZ 2.1-2007
METHACRYLIC ACID	79-41-4	PC-TWA	70 mg/m ³	GBZ 2.1-2007

Biological occupational exposure limits

Components	CAS-No.	Control parameters	Biological specimen	Sampling time	Permissible concentration	Basis
STYRENE	100-42-5	mandelic acid plus phenylglyoxylic acid	Urine	End of shift	400 mg/g Creatinine	ZCN_B EI

INEOS

SAFETY DATA SHEET

Revision Date: 03/24/2020

Print Date: 04.28.2020

SDS Number: R0402387

Version: 7.3

Derakane Momentum™ 470-300 epoxy vinyl ester resin
 ™ Trademark, INEOS or its subsidiaries, registered in various countries
 40212

		mandelic acid plus phenylglyoxylic acid	Urine	End of shift	295 Millimoles per mole Creatinine	ZCN_B EI
		mandelic acid plus phenylglyoxylic acid	Urine	Before next shift	120 Millimoles per mole Creatinine	ZCN_B EI
		mandelic acid plus phenylglyoxylic acid	Urine	Before next shift	160 mg/g Creatinine	ZCN_B EI

Engineering measures : Provide sufficient mechanical (general and/or local exhaust) ventilation to maintain exposure below exposure guidelines (if applicable) or below levels that cause known, suspected or apparent adverse effects.
 Provide appropriate exhaust ventilation at places where dust is formed.

Personal protective equipment

Respiratory protection : In the case of vapour formation use a respirator with an approved filter.

Filter type : Organic vapour type

Hand protection

Material : Laminate (Barrier© or Silvershield©)

Break through time : 480 min

Glove thickness : > 0.5 mm

Remarks : The exact break through time can be obtained from the protective glove producer and this has to be observed. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.

Eye protection : Wear chemical splash goggles when there is the potential for exposure of the eyes to liquid, vapor or mist.

Skin and body protection : Wear as appropriate:
 Impervious clothing
 Safety shoes
 Flame-resistant clothing
 Choose body protection according to the amount and concentration of the dangerous substance at the work place.
 Discard gloves that show tears, pinholes, or signs of wear.

Hygiene measures : Wash hands before breaks and at the end of workday.
 When using do not eat or drink.
 When using do not smoke.

9. PHYSICAL AND CHEMICAL PROPERTIES

INEOS

SAFETY DATA SHEET

Revision Date: 03/24/2020

Print Date: 04.28.2020

SDS Number: R0402387

Version: 7.3

Derakane Momentum™ 470-300 epoxy vinyl ester resin
 ™ Trademark, INEOS or its subsidiaries, registered in various countries
 40212

Physical state : liquid
 Odour : pungent
 Odour Threshold : No data available

pH : Not applicable

Melting point/freezing point : No data available
 Boiling point/boiling range : 145 °C Calculated Phase Transition Liquid/Gas
 Flash point : 29.4 °C
 Method: Seta closed cup

Evaporation rate : No data available

Upper explosion limit : Upper flammability limit
 6.1 %(V)
 Method: Calculated Explosive Limit

Lower explosion limit : Lower flammability limit
 1.1 %(V)
 Method: Calculated Explosive Limit

Vapour pressure : 6.67 hPa (20 °C)
 Calculated Vapor Pressure

Relative vapour density : > 1 (Air = 1.0)

Relative density : No data available

Density : 1.0832 g/cm³ (25 °C)

Solubility(ies)
 Water solubility : insoluble
 Solubility in other solvents : No data available

Partition coefficient: n-octanol/water : No data available
 Thermal decomposition : No data available

Viscosity
 Viscosity, dynamic : No data available
 Viscosity, kinematic : > 20.5 mm²/s (40 °C)

Oxidizing properties : No data available

SAFETY DATA SHEET

Revision Date: 03/24/2020

Print Date: 04.28.2020

SDS Number: R0402387

Version: 7.3

Derakane Momentum™ 470-300 epoxy vinyl ester resin
 ™ Trademark, INEOS or its subsidiaries, registered in various countries
 40212

10. STABILITY AND REACTIVITY

Reactivity Chemical stability Possibility of hazardous reactions	: No decomposition if stored and applied as directed. : Stable under recommended storage conditions. : Hazardous polymerisation may occur. Vapours may form explosive mixture with air. This product does not present a dust explosion hazard as delivered. However, fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source, is a potential dust explosion hazard.
Conditions to avoid	: temperature extremes Exposure to air. Exposure to sunlight. Heat, flames and sparks.
Incompatible materials	: Acids aluminum aluminum chloride Amines Bases Copper Copper alloys halogens iron chloride metal salts Oxidizing agents Peroxides
Hazardous decomposition products	: Hydrocarbons Acetone Carbon dioxide (CO ₂) Carbon monoxide

11. TOXICOLOGICAL INFORMATION

Exposure routes Acute toxicity May be harmful if inhaled. Components: STYRENE:	: Inhalation, Skin contact, Eye Contact, Ingestion : LD50 Oral (Rat): > 2,000 mg/kg : LC50 (Rat): 11.8 mg/l, 2770 ppm Exposure time: 4 h Test atmosphere: vapour No observed adverse effect level (Humans): 100 ppm
--	--

INEOS

SAFETY DATA SHEET

Revision Date: 03/24/2020

Print Date: 04.28.2020

SDS Number: R0402387

Version: 7.3

Derakane Momentum™ 470-300 epoxy vinyl ester resin
 ™ Trademark, INEOS or its subsidiaries, registered in various countries
 40212

Exposure time: 7 h
 Test atmosphere: vapour

Acute dermal toxicity : LD50 (Rat): > 2,000 mg/kg
 Method: OECD Test Guideline 402
 Assessment: No adverse effect has been observed in acute dermal toxicity tests.

METHACRYLIC ACID:

Acute oral toxicity : LD50 (Mouse): 1,250 mg/kg
 LD50 (Rat, male): 1,320 mg/kg
 Method: OECD Test Guideline 401

Acute inhalation toxicity : LC50 (Rat): 7.1 mg/l
 Exposure time: 4 h
 Test atmosphere: vapour
 Method: OECD Test Guideline 403
 Assessment: The component/mixture is classified as acute inhalation toxicity, category 4.

Acute dermal toxicity : LD50 (Rabbit): 500 - 1,000 mg/kg

QUATERNARY AMMONIUM SALT:

Acute oral toxicity : LD50 (Rat): 47 mg/kg
 Acute dermal toxicity : LD50 (Rabbit): > 200 - < 500 mg/kg

Skin corrosion/irritation

Causes skin irritation.

Product:

Remarks: May cause skin irritation and/or dermatitis.

Result: Repeated exposure may cause skin dryness or cracking.

Components:

STYRENE:

Species: Rabbit
 Result: Irritating to skin.

Species: human skin
 Result: No skin irritation

METHACRYLIC ACID:

INEOS

SAFETY DATA SHEET

Revision Date: 03/24/2020

Print Date: 04.28.2020

SDS Number: R0402387

Version: 7.3

Derakane Momentum™ 470-300 epoxy vinyl ester resin
 ™ Trademark, INEOS or its subsidiaries, registered in various countries
 40212

Method: OECD Test Guideline 404
 Result: Corrosive after 3 minutes or less of exposure

QUATERNARY AMMMONIUM SALT:
 Result: Irritating to skin.

Serious eye damage/eye irritation

Causes serious eye irritation.

Product:

Remarks: Vapours may cause irritation to the eyes, respiratory system and the skin., Causes serious eye irritation.

Components:

STYRENE:

Result: Irritating to eyes.

Remarks: Vapour during processing may be irritating to the respiratory tract and to the eyes.

METHACRYLIC ACID:

Result: Corrosive

QUATERNARY AMMMONIUM SALT:

Result: Slight, transient irritation

Respiratory or skin sensitisation

Skin sensitisation: Not classified based on available information.

Respiratory sensitisation: Not classified based on available information.

Components:

STYRENE:

Exposure routes: Skin contact

Species: Guinea pig

Assessment: Does not cause skin sensitisation.

Result: negative

Exposure routes: inhalation (vapour)

Species: Humans

Assessment: Does not cause respiratory sensitisation.

Result: negative

METHACRYLIC ACID:

Test Type: Buehler Test

Species: Guinea pig

Assessment: Did not cause sensitisation on laboratory animals.

Method: OECD Test Guideline 406

QUATERNARY AMMMONIUM SALT:

INEOS

SAFETY DATA SHEET

Revision Date: 03/24/2020

Print Date: 04.28.2020

SDS Number: R0402387

Version: 7.3

Derakane Momentum™ 470-300 epoxy vinyl ester resin
 ™ Trademark, INEOS or its subsidiaries, registered in various countries
 40212

Test Type: Local lymph node assay
 Species: Mouse
 Assessment: Did not cause sensitisation on laboratory animals.
 Method: OECD Test Guideline 429
 Result: Did not cause sensitisation on laboratory animals.

Germ cell mutagenicity
 Not classified based on available information.

Components:

METHACRYLIC ACID:

Genotoxicity in vitro : Test Type: Ames test
 Method: OECD Test Guideline 471
 Result: negative

: Test Type: Chromosome aberration test in vitro
 Method: OECD Test Guideline 487
 Result: negative

Genotoxicity in vivo : Test Type: Mammalian bone marrow sister chromatid exchange
 Test species: Rat (male)
 Cell type: Bone marrow
 Method: OECD Test Guideline 475
 Result: negative

Test Type: chromosome aberration assay
 Test species: Mouse (male)
 Method: OECD Test Guideline 478
 Result: negative

Test Type: chromosome aberration assay
 Test species: Mouse (male)
 Cell type: peripheral blood cells
 Method: OECD Test Guideline 474
 Result: negative

QUATERNARY AMMONIUM SALT:
 Genotoxicity in vitro : Test Type: Ames test
 Method: OECD Test Guideline 471
 Result: negative

Carcinogenicity

Not classified based on available information.

Reproductive toxicity

Not classified based on available information.

Components:

METHACRYLIC ACID:

INEOS

SAFETY DATA SHEET

Revision Date: 03/24/2020

Print Date: 04.28.2020

SDS Number: R0402387

Version: 7.3

Derakane Momentum™ 470-300 epoxy vinyl ester resin
 ™ Trademark, INEOS or its subsidiaries, registered in various countries
 40212

Effects on fertility : Species: Rat
 Application Route: Oral
 Fertility: No observed adverse effect level (Mating/Fertility):
 400 mg/kg body weight
 Symptoms: No effects on fertility No effects on reproduction parameters
 Method: OECD Test Guideline 416

Effects on foetal development : Species: Rabbit
 Application Route: Oral
 Developmental Toxicity: No observed adverse effect level F1:
 450 mg/kg body weight
 Symptoms: No specific developmental abnormalities
 Method: OECD Test Guideline 414

STOT - single exposure

May cause respiratory irritation.

Components:

STYRENE:

Assessment: May cause respiratory irritation.

METHACRYLIC ACID:

Exposure routes: Inhalation

Target Organs: Respiratory Tract

Assessment: May cause respiratory irritation.

QUATERNARY AMMONIUM SALT:

Exposure routes: Ingestion

Target Organs: Central nervous system

Assessment: Causes damage to organs.

STOT - repeated exposure

Causes damage to organs (Auditory system) through prolonged or repeated exposure if inhaled.

Components:

STYRENE:

Exposure routes: inhalation (vapour)

Target Organs: Auditory system

Assessment: Causes damage to organs through prolonged or repeated exposure.

Repeated dose toxicity

Components:

STYRENE:

Species: Human

85 mg/m³

Application Route: inhalation (vapour)

Species: Human

SAFETY DATA SHEET

Revision Date: 03/24/2020

Print Date: 04.28.2020

SDS Number: R0402387

Version: 7.3

Derakane Momentum™ 470-300 epoxy vinyl ester resin
 ™ Trademark, INEOS or its subsidiaries, registered in various countries
 40212

615 mg/kg
 Application Route: Skin contact

METHACRYLIC ACID:
 Species: Rat, male and female
 NOAEC: 352 mg/m³
 Application Route: inhalation (dust/mist/fume)
 Exposure time: 90 Days
 Group: yes
 Symptoms: Local irritation, Reduced body weight

Aspiration toxicity
 Not classified based on available information.

Components:
STYRENE:
 May be fatal if swallowed and enters airways.

Further information
Product:
 Remarks: Solvents may degrease the skin.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

STYRENE:

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 4.02 mg/l
 Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 4.7 mg/l
 Exposure time: 48 h

Toxicity to algae : ErC50 (Pseudokirchneriella subcapitata (green algae)): 4.9 mg/l
 Exposure time: 72 h

Toxicity to daphnia and other aquatic invertebrates : NOEC (Daphnia magna (Water flea)): 1.01 mg/l
 Exposure time: 21 d

(Chronic toxicity)
 Toxicity to bacteria : EC50 (activated sludge): ca. 500 mg/l
 Exposure time: 0.5 h

Toxicity to soil dwelling organisms : NOEC (Eisenia fetida (earthworms)): 34 mg/kg
 Exposure time: 14 d
 Method: OECD Test Guideline 207

METHACRYLIC ACID:

INEOS

SAFETY DATA SHEET

Revision Date: 03/24/2020

Print Date: 04.28.2020

SDS Number: R0402387

Version: 7.3

Derakane Momentum™ 470-300 epoxy vinyl ester resin
 ™ Trademark, INEOS or its subsidiaries, registered in various countries
 40212

- Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 85 mg/l
 Exposure time: 96 h
 Test Type: flow-through test
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 130 mg/l
 Exposure time: 48 h
 Test Type: flow-through test
- Toxicity to algae : EC50 (Pseudokirchneriella subcapitata (green algae)): 20 mg/l
 End point: Biomass
 Exposure time: 72 h
 Test Type: flow-through test
 Method: OECD Test Guideline 201
- Toxicity to fish (Chronic toxicity) : NOEC (Danio rerio (zebra fish)): 10 mg/l
 Exposure time: 35 d
 Test Type: flow-through test
 Method: OECD Test Guideline 210
- Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 53 mg/l
 Exposure time: 21 d
 Test Type: flow-through test
 Method: OECD Test Guideline 211
- QUATERNARY AMMMONIUM SALT:**
- Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 462 mg/l
 Exposure time: 96 h
 Test Type: flow-through test
 Method: OECD Test Guideline 203
- Toxicity to daphnia and other aquatic invertebrates : LC50 (Daphnia magna (Water flea)): 3.6 mg/l
 Exposure time: 48 h
 Test Type: static test
 Method: OECD Test Guideline 202
 Remarks: Information given is based on data obtained from similar substances.
- Toxicity to algae : EC50 (Pseudokirchneriella subcapitata (microalgae)): 115 mg/l
 End point: Growth inhibition
 Exposure time: 72 h
 Test Type: static test
 Method: OECD Test Guideline 201
 Remarks: Information given is based on data obtained from similar substances.
- NOEC (Pseudokirchneriella subcapitata (microalgae)): 7.5


SAFETY DATA SHEET

Revision Date: 03/24/2020

Print Date: 04.28.2020

SDS Number: R0402387

Version: 7.3

Derakane Momentum™ 470-300 epoxy vinyl ester resin
 ™ Trademark, INEOS or its subsidiaries, registered in various countries
 40212

mg/l

End point: Growth inhibition

Exposure time: 72 h

Test Type: static test

Method: OECD Test Guideline 201

Remarks: Information given is based on data obtained from similar substances.

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 0.03 mg/l
 Exposure time: 11 d
 End point: Reproduction Test
 Test Type: semi-static test

No data available

Persistence and degradability
Components:
STYRENE:

Biodegradability : Result: Readily biodegradable.
 Biodegradation: > 60 %
 Exposure time: 10 d

METHACRYLIC ACID:

Biodegradability : Inoculum: activated sludge
 Result: Readily biodegradable.
 Biodegradation: 87 %
 Exposure time: 28 d

QUATERNARY AMMONIUM SALT:

Biodegradability : Result: Readily biodegradable.
 Biodegradation: 100 %
 Exposure time: 28 d
 Method: OECD Test Guideline 301B
 Remarks: Information given is based on data obtained from similar substances.

No data available

Bioaccumulative potential
Components:
STYRENE:

Bioaccumulation : Bioconcentration factor (BCF): < 100

Partition coefficient: n-octanol/water : log Pow: 2.96 (25 °C)

METHACRYLIC ACID:

Bioaccumulation : Bioconcentration factor (BCF): 1.0
 Remarks: Bioaccumulation is unlikely.

INEOS

SAFETY DATA SHEET

Revision Date: 03/24/2020

Print Date: 04.28.2020

SDS Number: R0402387

Version: 7.3

Derakane Momentum™ 470-300 epoxy vinyl ester resin
 ™ Trademark, INEOS or its subsidiaries, registered in various countries
 40212

Partition coefficient: n-octanol/water : log Pow: 0.93

QUATERNARY AMMONIUM SALT:

Partition coefficient: n-octanol/water : log Pow: -1.6 (20 °C)
 Method: OECD Test Guideline 107
 GLP: yes

No data available

Mobility in soil

Components:

STYRENE:

Distribution among environmental compartments : Koc: 352

No data available

Other adverse effects

Product:

Additional ecological information : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal., Toxic to aquatic life.

Components:

STYRENE:

Results of PBT and vPvB assessment : This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

QUATERNARY AMMONIUM SALT:

Results of PBT and vPvB assessment : This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

13. DISPOSAL CONSIDERATIONS

Disposal methods

General advice : The product should not be allowed to enter drains, water courses or the soil.
 Do not contaminate ponds, waterways or ditches with chemical or used container.
 Send to a licensed waste management company.

Contaminated packaging : Empty remaining contents.
 Dispose of as unused product.
 Empty containers should be taken to an approved waste handling site for recycling or disposal.
 Do not re-use empty containers.
 Do not burn, or use a cutting torch on, the empty drum.

SAFETY DATA SHEET

Revision Date: 03/24/2020

Print Date: 04.28.2020

SDS Number: R0402387

Version: 7.3

Derakane Momentum™ 470-300 epoxy vinyl ester resin
 ™ Trademark, INEOS or its subsidiaries, registered in various countries
 40212

14. TRANSPORT INFORMATION

International transport regulations

REGULATION

ID NUMBER	PROPER SHIPPING NAME	*HAZARD CLASS	SUBSIDIARY HAZARDS	PACKING GROUP	MARINE POLLUTANT / LTD. QTY.
-----------	----------------------	---------------	--------------------	---------------	------------------------------

CN_DG

UN	1866	RESIN SOLUTION	3	III	
----	------	----------------	---	-----	--

INTERNATIONAL AIR TRANSPORT ASSOCIATION - CARGO

UN	1866	Resin solution	3	III	
----	------	----------------	---	-----	--

INTERNATIONAL AIR TRANSPORT ASSOCIATION - PASSENGER

UN	1866	Resin solution	3	III	
----	------	----------------	---	-----	--

INTERNATIONAL MARITIME DANGEROUS GOODS

UN	1866	RESIN SOLUTION	3	III	
----	------	----------------	---	-----	--

*ORM = ORM-D, CBL = COMBUSTIBLE LIQUID

Marine pollutant	no
------------------	----

Dangerous goods descriptions (if indicated above) may not reflect quantity, end-use or region-specific exceptions that can be applied. Consult shipping documents for descriptions that are specific to the shipment.

15. REGULATORY INFORMATION

National regulatory information

Law on the Prevention and Control of Occupational Diseases

Regulations on the Control over Safety of Dangerous Chemicals (Decree No. 591 of the State Council of the People's Republic of China)

List of dangerous goods (GB12268-2012)

Classification and code of dangerous goods (GB6944-2012)

Safety Data Sheet for chemical products – Content and order of sections (GB16483-2008)

**SAFETY DATA SHEET**

Revision Date: 03/24/2020

Print Date: 04.28.2020

SDS Number: R0402387

Version: 7.3

Derakane Momentum™ 470-300 epoxy vinyl ester resin
™ Trademark, INEOS or its subsidiaries, registered in various countries
40212

General rule for classification and hazard communication of chemicals (GB13690-2009)**The components of this product are reported in the following inventories:**

DSL	: This product contains one or several components that are not on the Canadian DSL and have annual quantity limits.
AICS	: On the inventory, or in compliance with the inventory
ENCS	: On the inventory, or in compliance with the inventory
KECI	: On the inventory, or in compliance with the inventory
PICCS	: Not in compliance with the inventory
IECSC	: On the inventory, or in compliance with the inventory
TCSI	: On the inventory, or in compliance with the inventory
TSCA	: On TSCA Inventory

Inventories

AICS (Australia), DSL (Canada), IECSC (China), REACH (European Union), ENCS (Japan), ISHL (Japan), KECI (Korea), NZIoC (New Zealand), PICCS (Philippines), TCSI (Taiwan), TSCA (USA)

16. OTHER INFORMATION**Further information**

Revision Date: 03/24/2020

Full text of H-Statements

H226	Flammable liquid and vapour.
H227	Combustible liquid.
H300	Fatal if swallowed.
H302	Harmful if swallowed.
H303	May be harmful if swallowed.
H304	May be fatal if swallowed and enters airways.
H311	Toxic in contact with skin.
H314	Causes severe skin burns and eye damage.

INEOS

SAFETY DATA SHEET

Revision Date: 03/24/2020

Print Date: 04.28.2020

SDS Number: R0402387

Version: 7.3

Derakane Momentum™ 470-300 epoxy vinyl ester resin
 ™ Trademark, INEOS or its subsidiaries, registered in various countries
 40212

H315	Causes skin irritation.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H370	Causes damage to organs if swallowed.
H372	Causes damage to organs through prolonged or repeated exposure if inhaled.
H401	Toxic to aquatic life.
H402	Harmful to aquatic life.
H411	Toxic to aquatic life with long lasting effects.

Other information : The information accumulated herein is believed to be accurate but is not warranted to be whether originating with the company or not. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances. This SDS has been prepared by INEOS's Environmental Health and Safety Department.

Sources of key data used to compile the Safety Data Sheet
 INEOS internal data including own and sponsored test reports
 The UNECE administers regional agreements implementing harmonised classification for labelling (GHS) and transport.

Full text of other abbreviations
 AU OEL : Australia. Workplace Exposure Standards for Airborne Contaminants.
 CN OEL : China. Occupational Exposure Limits
 HK OEL : Hong Kong. Code of Practice on Control of Air Impurities (Chemical Substances) in the Workplace
 IN OEL : India. Permissible levels of certain chemical substances in work environment.
 ID OEL : Indonesia. Occupational Exposure Limits
 JPJSOH OEL : Japan. The Japan Society for Occupational Health. Recommendation of Occupational Exposure Limits
 JPISHL OEL : Japan. Administrative Control Levels
 KOR OEL : Korea. Occupational Exposure Limits
 MY OEL : Malaysia. Occupational Safety and Health (Use and Standards of Exposure of Chemicals Hazardous to Health)
 NZ OEL : New Zealand. Workplace Exposure Standards for Atmospheric Contaminants
 PH OEL : Philippines. Threshold Limit Values For Airborne Contaminants
 SG OEL : Singapore. Workplace Safety and Health Act - First Schedule Permissible Exposure Limits of Toxic Substances

**SAFETY DATA SHEET**

Revision Date: 03/24/2020

Print Date: 04.28.2020

SDS Number: R0402387

Version: 7.3

Derakane Momentum™ 470-300 epoxy vinyl ester resin
™ Trademark, INEOS or its subsidiaries, registered in various countries
40212

TW OEL : Taiwan. Standards on the Concentration Levels of Hazardous Substances in the Air at Workplace
TH OEL : Thailand. Occupational Exposure Limits
VN OEL : Vietnam. Occupational Exposure Limits
CN / EN