Extended Safety Data Sheet

Jarylec® C101D

Last data update : 2023-07-19

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

1.1. Identification of the product

Identification of the mixture: Jarylec® C101D

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

Use of the Substance/Mixture :

Sector of use :	Product category :
Industrial use of dielectric fluids **SU16:** Manufacture of computer, electronic and optical products, electrical equipment	**PC0:** Dielectric fluid
Industrial use of dielectric fluids **SU16:** Manufacture of computer, electronic and optical products, electrical equipment	**PC0:** Dielectric fluid

1.3. Details of the supplier of the safety data sheet

Supplier

ARKEMA
Hydrogen Peroxide
420 rue d'Estienne d'Orves
92705 Colombes Cedex, FRANCE
Telephone: +33 (0)1 49 00 80 80
Telefax: +33 (0)1 49 00 83 96
E-mail address: pars-drp-fds@arkema.com
http://www.arkema.com

E-mail address : Exposure scenario arkema-hydroperox-reach-uses@arkema.com

1.4. Emergency telephone number

+ 33 1 49 00 77 77
European emergency phone number: 112
+44 870 8200418 or +44 2038073798 (CHEMTREC UK - Emergency phone numbers)

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008, as amended for Great Britain):
Skin irritation, 2, H315
Reproductive toxicity, 1B, H360FD
Aspiration hazard, 1, H304
Chronic aquatic toxicity, 1, H410

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

2.2. Label elements

Label elements (REGULATION (EC) No 1272/2008, as amended for Great Britain):

Hazardous components which must be listed on the label:

Benzyltoluene
Dibenzylbenzene, ar-methyl derivative

Hazard pictograms:

Signal word: **Danger**

Hazard statements:
H304 : May be fatal if swallowed and enters airways.
H315 : Causes skin irritation.
H360FD : May damage fertility. May damage the unborn child.
H410 : Very toxic to aquatic life with long lasting effects.

Precautionary statements:
Prevention:
P201 : Obtain special instructions before use.
P264 : Wash skin thoroughly after handling.
P280 : Wear protective gloves and protective clothing and eye protection and face protection.
Response:
P301 + P310 : IF SWALLOWED: Immediately call a POISON CENTER or doctor.
P308 + P313 : IF exposed or concerned: Get medical advice/ attention.
P331 : Do NOT induce vomiting.
Storage:
P405 : Store locked up.
Disposal:
P501 : Dispose of contents or container to an approved waste disposal plant.

Special labelling:

EUH208 May produce an allergic reaction. Contains: Cycloaliphatic Epoxide (Mw < 700).

2.3. Other hazards

Potential health effects:
May damage fertility. Effects on fertility and offspring. Reduced fertility. Increase incidence of post-implantation loss, Effects on F1 offspring. Reduced offspring weight gain. May damage the unborn child.
Inhalation: Inhalation of vapours due to thermal decomposition : Toxic effects cannot be excluded Formation of carboxyhaemoglobin Effect reversible within a few days
Skin contact: Causes skin irritation. Repeated or prolonged exposure may cause skin irritation and dermatitis, due to degreasing properties of the product.
Eye contact: Non-irritating to slightly irritating.
Ingestion: May be harmful if swallowed.

Environmental Effects:
No effect up to the limit of solubility Not readily biodegradable. Bioaccumulable

Physical and chemical hazards:
Thermal decomposition giving toxic products.
Decomposition products: See chapter 10

Other:
Results of PBT and vPvB assessment : This mixture contains one or several substances meeting PBT and vPvB criteria according to REACH regulation, annex XIII.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2. Mixtures

Chemical nature of the mixture[1]:
Preparation based on :

Hazardous components (accordance with Annex II of Regulation (EC) No 1907/2006, as amended by UK REACH Regulations SI 2019/758) :

Chemical name[1] & REACH Registration Number[2]	EC-No.	CAS-No.	Concentration	Classification REGULATION (EC) No 1272/2008, as amended for Great Britain
Benzyltoluene (01-2119488215-34-0000)	248-654-8	27776-01-8	70 - 80 %	Skin Irrit. 2; H315 AH 1; H304 Aquatic Chronic 1; H410 Repr. 1B; H360FD M-Factor Chronic = 1
Dibenzylbenzene, ar-methyl derivative (01-2119488667-17-0001)	258-649-2	53585-53-8	20 - 30 %	Asp. Tox. 1; H304 Repr. 1B; H360FD Aquatic Chronic 1; H410 M-Factor Chronic = 10
Cycloaliphatic Epoxide (Mw < 700) (UK-01-3358558212-6-0001)	219-207-4	2386-87-0	< 1 %	Skin Sens. 1B; H317

[1]: See chapter 14 for Proper Shipping Name
[2] :See the text of the regulation for applicable exceptions or provisions -

SECTION 4: FIRST AID MEASURES

4.1. Description of necessary first-aid measures:

General advice:
Take off immediately all contaminated clothing. Wash contaminated clothing before re-use.

Inhalation:
Inhalation of vapours due to thermal decomposition : Move to fresh air. Oxygen or artificial respiration if needed. In case of problems : Consult a physician.

Skin contact:
No hazards which require special first aid measures.

Eye contact:
Wash well-open eyes immediately, abundantly and thoroughly with water. Remove contact lenses. Consult an ophthalmologist.

Ingestion:
Do NOT induce vomiting. Risk of severe pulmonary problems in case of accidental aspiration. If swallowed, call a poison control centre or doctor immediately.

Protection of first-aiders:
If entering a saturated atmosphere, wear a self contained breathing apparatus. Protective suit.

4.2. Most important symptoms/effects, acute and delayed: No data available.

4.3. Indication of any immediate medical attention and special treatment needed: No data available.

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

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

5.2. Special hazards arising from the substance or mixture:
At high temperature :, Thermal decomposition gives :, Benzene, Toluene, Carbon oxides (by combustion)

5.3. Advice for firefighters:

Specific methods:
Cool containers/tanks with water spray. Ensure a system for the rapid emptying of containers. In case of fire nearby, remove exposed containers.

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

6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures:
Avoid contact with the skin and the eyes. Avoid inhalation of vapours. In case of insufficient ventilation, wear suitable respiratory equipment.

6.2. Environmental precautions:
Do not release into the environment. Do not let product enter drains. Dam up.

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. sand, vermiculite, perlite. After cleaning, flush away traces 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.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling:

Technical measures/Precautions:
Storage and handling precautions applicable to products: Liquid. Irritant. Provide appropriate exhaust ventilation at machinery. Provide showers, eye-baths. Provide self-contained breathing apparatus nearby.

Safe handling advice:
Clean up puddles of product immediately. In case of insufficient ventilation, wear suitable respiratory equipment. Keep away from heat, sparks and flames.

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

7.2. Conditions for safe storage, including any incompatibilities:
Keep container tightly closed in a dry and well-ventilated place. Provide a catch-tank in a bunded area. Provide impermeable floor.

Incompatible products:
Oxidizing agents

Packaging material:
Recommended: Ordinary steel
Ordinary steel

7.3. Specific end use(s): None.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters:

Exposure Limit Values Not relevant

Derived No Effect Level (DNEL): BENZYLTOLUENE :

End Use	Inhalation	Ingestion	Skin contact
Workers	1,97 mg/m3 (LT, SE)		2,8 mg/kg bw/day (LT, SE)
Consumers	0,34 mg/m3 (LT, SE)	0,1 mg/kg bw/day (LT, SE)	1 mg/kg bw/day (LT, SE)

LE : Local effects, **SE** : Systemic effects, **LT** : Long term, **ST** : Short term

Derived No Effect Level (DNEL): DIBENZYLBENZENE, AR-METHYL DERIVATIVE :

End Use	Inhalation	Ingestion	Skin contact
Workers	0,66 mg/m3 (LT, SE)		1,56 mg/kg bw/day (SE, LT)
Consumers	0,12 mg/m3 (SE, LT)	0,06 mg/kg bw/day (SE)	0,56 mg/kg bw/day (SE, LT)

LE : Local effects, **SE** : Systemic effects, **LT** : Long term, **ST** : Short term

Predicted No Effect Concentration: No data available.

8.2. Exposure controls:
General protective measures: Ensure sufficient air exchange and/or exhaust in work areas

Personal protective equipment:
Respiratory protection: High concentrations or prolonged activity: Wear a mask, if necessary. Recommended Filter type: A2
Hand protection: Splash contact, intermittent and prolonged PVC gloves Glove thickness: 1,2 - 1,4 mm
Eye/face protection: Safety glasses
Skin and body protection: At the workplace : Combination with delayed penetration
Intervention at incident: Combination with delayed penetration

Environmental exposure controls: See chapter 6

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Appearance:
Physical state (20°C): liquid
Colour: colourless
Odour: aromatic
Olfactory threshold: No data available.
pH: Not applicable

Freezing point :	< -50 °C
Boiling point/boiling range :	> 250 °C Decomposes on heating.
Flash point:	open cup: 144 °C (Standard NF T 60 118)
Evaporation rate:	No data available.
Flammability (solid, gas):	
Flammability:	Not applicable
Vapour pressure:	0,0034 hPa , at 20 °C
	1,3 hPa , at 100 °C
Vapour density:	No data available.
Density:	1.010 kg/m3 , at 20 °C
	999 kg/m3 , at 50 °C
	960 kg/m3 , at 80 °C
Water solubility:	immiscible at 20 °C
Partition coefficient: n-octanol/water:	BENZYLTOLUENE :
	log Kow : 4,31 - 4,40 , at 20 °C (OECD Test Guideline 117)
	DIBENZYLBENZENE, AR-METHYL DERIVATIVE :
	log Kow : > 6 , at 22 °C (OECD Test Guideline 117)
Auto-ignition temperature:	459 °C (Standard A15 (D. 92/69/EEC))
Decomposition temperature:	> 250 °C
Viscosity, kinematic:	6,5 mm2/s , at 20 °C
	3,32 mm2/s , at 40 °C
Explosive properties:	
Explosivity:	Not relevant (due to its chemical structure)
Oxidizing properties:	Not relevant (due to its chemical structure)

9.2. Other information:

Solubility in other solvents:	Soluble in most organic solvents
Surface tension:	38,24 mN/m at 25 °C

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity: No data available.

10.2. Chemical stability:
The product is stable under normal handling and storage conditions.

10.3. Possibility of hazardous reactions:
None under normal conditions of use.

10.4. Conditions to avoid:
Heat, flames and sparks. Exposure to sunlight. Exposure to moisture (to maintain the technical properties of the product).

10.5. Incompatible materials to avoid:
Oxidizing agents

10.6. Hazardous decomposition products:

Thermal decomposition:
Decomposition temperature: > 250 °C
At high temperature :, Thermal decomposition giving toxic products, Benzene, Toluene

SECTION 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: **According to its composition, this product should not be harmful in normal conditions of use**
Inhalation of vapours due to thermal decomposition: Toxic effects cannot be excluded

BENZYLTOLUENE :

Inhalation of vapours due to thermal decomposition:, Difficulty in breathing, Formation of carboxyhaemoglobin
Effect reversible within a few days

• In animals : Inhalation of vapours from heated product:
No mortality/4 h/Rat: > 1,88 mg/l (Method: OECD Test Guideline 403)

DIBENZYLBENZENE, AR-METHYL DERIVATIVE :
Inhalation of vapours due to thermal decomposition:
Difficulty in breathing, Formation of carboxyhaemoglobin

• In animals : Inhalation of vapours from heated product:
No mortality/4 h/Rat: 0,24 mg/l (Method: OECD Test Guideline 403)
Effect reversible within a few days

Ingestion: **According to its composition, can be considered as May be harmful if swallowed.**
LD50/Rat: 3.080 mg/kg

Dermal: **May be harmful in contact with skin. At high temperature, products of thermal decomposition can be irritating to skin**

BENZYLTOLUENE :
• In animals : No mortality/Rabbit: > 2.000 mg/kg (Method: OECD Test Guideline 402)

DIBENZYLBENZENE, AR-METHYL DERIVATIVE :
• In animals : No mortality/Rabbit: 2.000 mg/kg (Method: OECD Test Guideline 402)

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

Skin contact: **Causes skin irritation.**
• In animals : Repeated or prolonged exposure may cause skin irritation and dermatitis, due to degreasing properties of the product.

Eye contact: **Slightly or not irritating to eyes**
• In animals : Slightly or not irritating to eyes (OECD Test Guideline 405, Rabbit)

Respiratory or skin sensitisation:

Inhalation: No data available.

Skin contact: **From its composition, it must be considered as: Risk of skin sensitization.**

CYCLOALIPHATIC EPOXIDE (MW < 700) :
• In animals : Weak sensitizing effects by skin contact. (Method: OECD Test Guideline 406 Guinea pig maximization test, Guinea pig)

CMR effects :

Mutagenicity: **According to its composition, can be considered as Not genotoxic**

In vitro

BENZYLTOLUENE :
Ames test: Inactive (Method: OECD Test Guideline 471)
In vitro gene mutations test on mammalian cells: Inactive (Method: OECD Test Guideline 476)
Tests for chromosome aberrations in vitro on mammalian cells: Inactive (Method: OECD Test Guideline 473)

DIBENZYLBENZENE, AR-METHYL DERIVATIVE :
Ames test: Inactive (Method: OECD Test Guideline 471)
In vitro gene mutations test on mammalian cells: Inactive (Method: OECD Test Guideline 476)
Tests for chromosome aberrations in vitro on mammalian cells: Inactive (Method: OECD Test Guideline 473)

In vivo

According to available experimental data:, Not genotoxic in vivo
In vivo micronucleus test: Inactive (Method: OECD Test Guideline 474)

Carcinogenicity: No data available.

Reproductive toxicity:

Fertility: **May damage fertility.**

BENZYLTOLUENE :
Effects on fertility and offspring.
Lowest observed adverse effect level (Parental toxicity): 30 mg/kg bw/day
No observed adverse effect level (Fertility): 100 mg/kg bw/day
LOAEL (Developmental Toxicity): 30 mg/kg bw/day
(Method: OECD Test Guideline 421, Rat, By oral route)

DIBENZYLBENZENE, AR-METHYL DERIVATIVE :

reproductive and developmental toxicity study: According to available experimental data:, Effects on fertility and offspring., Reduced fertility., Increase incidence of post-implatation loss, Effects on F1 offspring., Reduced offspring weight gain.
No observed adverse effect level (Parental toxicity): 250 mg/kg bw/day
No observed adverse effect level (Mating/Fertility) (Fertility): 250 mg/kg bw/day
NOAEL (Developmental Toxicity): 80 mg/kg bw/day
(Method: OECD Test Guideline 421, rat, Oral)

Foetal development: **May damage the unborn child.**

BENZYLTOLUENE :

Embryo-foetal development: Reduced number of viable fetuses, Reported toxic effects on foetal development
No observed adverse effect level (Maternal Toxicity): 45 mg/kg bw/day
(Method: OECD Test Guideline 414)

DIBENZYLBENZENE, AR-METHYL DERIVATIVE :

According to available experimental data:
Absence of toxic effects for foetal development
NOAEL (Developmental Toxicity): 150 mg/kg bw/day
NOAEL (Maternal Toxicity): 150 mg/kg bw/day
(Method: OECD Test Guideline 414, Rat, By oral route)
Embryo-foetal development: Malformations were observed.
Lowest observed adverse effect level (Developmental Toxicity): 10 mg/kg bw/day
No observed adverse effect level (Maternal Toxicity): 75 mg/kg bw/day
(Method: OECD Test Guideline 414, Rabbit, Oral)

Specific target organ toxicity :

Single exposure : No data available.

Repeated exposure: **The substance or mixture is not classified as specific target organ toxicant, repeated exposure.**

BENZYLTOLUENE :

According to available experimental data: (Method: OECD Test Guideline 408)
By oral route: No specific toxic effects, Target organs: Liver, NOAEL= 50mg/kg/d, LOAEL= 500mg/kg/d (Rat, 4 Months)

DIBENZYLBENZENE, AR-METHYL DERIVATIVE :

According to available experimental data:
By oral route: No specific toxic effects, Target organs: Liver, NOAEL= 50mg/kg/d, LOAEL= 500mg/kg/d (Method: OECD Test Guideline 408, Rat, 4 Months)

Aspiration hazard:

May be fatal if swallowed and enters airways.

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicology Assessment: All available and relevant 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.

Chronic aquatic toxicity : Very toxic to aquatic life with long lasting effects.

12.1. Toxicity :

Fish: **Based on the available information, it is not possible to conclude on the hazard potential of this mixture.**

BENZYLTOLUENE :

LC50, 96 h (Danio rerio (zebra fish)) (Method: OECD Test Guideline 203) No effect up to the limit of solubility

DIBENZYLBENZENE, AR-METHYL DERIVATIVE :

LC50, 96 h (Danio rerio (zebra fish)) (Method: OECD Test Guideline 203) No effect up to the limit of solubility

Aquatic invertebrates: **Based on the available information, it is not possible to conclude on the hazard potential of this mixture.**

BENZYLTOLUENE :

EC50, 48 h (Daphnia magna (Water flea)) (Method: Directive 67/548/EEC, Annex V, C.2.) No effect up to the limit of solubility

DIBENZYLBENZENE, AR-METHYL DERIVATIVE :

EC50, 48 h (Daphnia magna (Water flea)) (Method: OECD Test Guideline 202) No effect up to the limit of solubility

Aquatic plants: **Based on the available information, it is not possible to conclude on the hazard potential of this mixture.**

BENZYLTOLUENE :

ErC50, 72 h (Pseudokirchneriella subcapitata) (Method: OECD Test Guideline 201, Growth inhibition) No effect up to the limit of solubility

DIBENZYLBENZENE, AR-METHYL DERIVATIVE :
ErC50, 72 h (Skeletonema costatum (marine diatom)) (Method: ISO 10253) No effect up to the limit of solubility

Microorganisms:

BENZYLTOLUENE :
EC10, 5 h (Pseudomonas putida) : > 0,99 g/l (Method: Reported data)

DIBENZYLBENZENE, AR-METHYL DERIVATIVE :
EC10, 5 h (Pseudomonas putida) : > 1.000 mg/l (Method: Reported data, Respiration inhibition)

Sediment toxicity:

BENZYLTOLUENE :
LC50, 10 d (Corophium volutator): 331 mg/kg dw (Method: Reported data)

DIBENZYLBENZENE, AR-METHYL DERIVATIVE :
NOEC, 10 d (Corophium volutator): 42 mg/kg dw (Method: Reported data)

Aquatic toxicity / Long term toxicity:

Fish:

BENZYLTOLUENE :
NOEC, 32 d (Pimephales promelas (fathead minnow)) : 0,064 mg/l (Method: OECD Test Guideline 210)

DIBENZYLBENZENE, AR-METHYL DERIVATIVE :
NOEC, 32 d (Pimephales promelas (fathead minnow)) : 5,5 µg/l (Method: OECD Test Guideline 210)

Aquatic invertebrates:

BENZYLTOLUENE :
EC10, 21 d (Daphnia magna (Water flea)) : 0,043 mg/l (Method: OECD Test Guideline 211)

DIBENZYLBENZENE, AR-METHYL DERIVATIVE :
NOEC, 21 d (Daphnia magna (Water flea)) : 1,4 µg/l (Method: OECD Test Guideline 211, reproduction)

Aquatic plants:

BENZYLTOLUENE :
NOEC r, 72 h (Pseudokirchneriella subcapitata (green algae)) (Method: OECD Test Guideline 201) No effect up to the limit of solubility

DIBENZYLBENZENE, AR-METHYL DERIVATIVE :
NOEC r, 72 h (Skeletonema costatum) (Method: ISO 10253) No effect up to the limit of solubility

Non aquatic toxicity / Toxicity :

Toxicity to soil dwelling organisms:

DIBENZYLBENZENE, AR-METHYL DERIVATIVE :
LC50, 14 d (Eisenia fetida (earthworms)) : 850 mg/kg (Soil dw) (Method: Regulation (EC) No. 440/2008, Annex, C.8)
NOEC, 28 d (Folsomia candida) : 100 mg/kg (Soil dw) (Method: Reported data, mortality)
NOEC, 28 d (Folsomia candida) : 320 mg/kg (Soil dw) (Method: Reported data, reproduction)
NOEC, 28 d (Microorganisms) : 515,4 mg/kg (Soil dw) (Method: OECD Test Guideline 216)

Terrestrial plants:

DIBENZYLBENZENE, AR-METHYL DERIVATIVE :
NOEC, Test duration: 20 d : 100 mg/kg (Method: OECD Test Guideline 208)

12.2. Persistence and degradability :

Biodegradation (In water): **All the products and/or main components quoted in section 3 and/or analogue substances/metabolites are not readily biodegradable.**

BENZYLTOLUENE :
Not readily biodegradable.: 46 % after 29 d (Method: Directive 67/548/EEC Annex V, C.4.C.)

DIBENZYLBENZENE, AR-METHYL DERIVATIVE :
Not readily biodegradable.: 0 - 2 % after 28 d (Method: OECD Test Guideline 301 B)

12.3. Bioaccumulative potential :

Bioaccumulation: **All the products and/or components quoted in section 3 and/or analogue substances/metabolites are bioaccumulable.**

BENZYLTOLUENE :

Partition coefficient: n-octanol/water: log Kow : 4,31 - 4,40 , at 20 °C (Method: OECD Test Guideline 117)

DIBENZYLBENZENE, AR-METHYL DERIVATIVE :

Partition coefficient: n-octanol/water: log Kow : > 6 , at 22 °C (Method: OECD Test Guideline 117)

BENZYLTOLUENE :

May be considered as comparable to a similar product for which experimental results are:
Bioconcentration factor (BCF): 7.525 (Method: calculated

DIBENZYLBENZENE, AR-METHYL DERIVATIVE :

Bioconcentration factor (BCF): 7.525 (Method: calculated
Bioconcentration factor (BCF): 6.300 (Method: OECD Test Guideline 305 C

12.4. Mobility in soil - Distribution among environmental compartments:

Vapor pressure: 0,0034 hPa, 20 °C
1,3 hPa, 100 °C
Surface tension: 38,24 mN/m 25 °C

Absorption / desorption:
BENZYLTOLUENE :

log Koc: 3,56 - 3,68 (Method: OECD Test Guideline 121)

DIBENZYLBENZENE, AR-METHYL DERIVATIVE :

log Koc: = 3,55 - 5,56 (Method: OECD Test Guideline 121)

12.5. Results of PBT and vPvB assessment :
This mixture contains one or several substances meeting PBT and vPvB criteria according to REACH regulation, annex XIII.

12.6. Other adverse effects: None known.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods:

Disposal of product: Destroy the product by incineration (in accordance with local and national regulations). Do not dispose of waste into sewer.

Disposal of packaging: Do not release into the environment. Destroy packaging by incineration at an approved waste disposal site (in accordance with local and national regulations).

SECTION 14: TRANSPORT INFORMATION

Regulation	14.1. UN number	14.2.UN proper shipping name	14.3.Class*	Label	14.4. PG*	14.5. Environmental hazards	14.6. Special precautions for user
ADR	3082	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (DIBENZYLBENZENE, AR-METHYL DERIVATIVE)	9	9	III	yes	
ADN	3082	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (DIBENZYLBENZENE, AR-METHYL DERIVATIVE)	9	9	III	yes	
RID	3082	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (DIBENZYLBENZENE, AR-METHYL DERIVATIVE)	9	9	III	yes	
IATA Cargo	3082	Environmentally hazardous substance, liquid, n.o.s. (Dibenzylbenzene, ar-methyl derivative)	9	9MI	III	yes	
IATA Passenger	3082	Environmentally hazardous substance, liquid, n.o.s. (Dibenzylbenzene, ar-methyl derivative)	9	9MI	III	yes	
IMDG	3082	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (DIBENZYLBENZENE, AR-METHYL DERIVATIVE)	9	9	III	Marine pollutant	EmS Number: F-A, S-F Mark: MP

*Description: 14.3. Transport hazard class(es)
14.4. Packing group

14.7. Maritime transport in bulk according to IMO instruments: Not applicable

SECTION 15: REGULATORY INFORMATION

Safety data sheets: accordance with Annex II of Regulation (EC) No 1907/2006, as amended by UK REACH Regulations SI 2019/758

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

Major Accident Hazard Legislation ENVIRONMENTAL HAZARDS E1

15.2. Chemical safety assessment:

Chemical Safety Assessments have been carried out for these substances. (Benzyltoluene) (Dibenzyltoluene)
The substance EC 258-649-2 may be identified under CAS 26898-17-9 outside of EU.

INVENTORIES:

European union/EEA:	In the event of purchase from an Arkema legal entity based in the European Economic Area (EEA), it is established that this product complies with the registration provisions of REACH Regulation (EC) No. 1907/2006, given that all of its components are excluded, exempted and / or registered. If purchasing from a legal entity established outside the EEA, please contact your local representative for more information.
TSCA (USA) :	The components of this product are all on the TSCA Inventory
NDSL (Canada) :	This product contains one or several components listed in the Canadian NDSL list. All other components are on the DSL list.
IECSC (CN):	All components of this product are listed or exempted
ENCS (JP):	All components of this product are listed or exempted
ISHL (JP):	All components of this product are listed or exempted
KECI (KR):	All components of this product are listed or exempted
PICCS (PH):	Not all components of this product are listed or exempted
NZIOC (NZ) :	All components of this product are listed or exempted
AIIC:	All components of this product are listed or exempted
TCSI:	All components of this product are listed or exempted

SECTION 16: OTHER INFORMATION

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

H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H360FD	May damage fertility. May damage the unborn child.
H410	Very toxic to aquatic life with long lasting effects.

Further information When used in formulations, contact us for labelling.

Update:

Safety datasheet sections which have been updated:		Type:
1	UFI Number	Additions
1	SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING	Revisions
2	Classification and labelling, Potential health effects, Environmental Effects	Revisions, Additions
3	Composition/information on ingredients	Revisions
8	Derived No Effect Level (DNEL), Predicted No Effect Concentration	Additions, Deletions
9	Decomposition temperature, Flammability (solid, gas), Explosive properties, Oxidizing properties, Viscosity	Revisions
11	Acute toxicity, Local effects, Sensitisation, Germ cell mutagenicity, Reproductive toxicity, Repeated dose toxicity, Aspiration hazard	Additions, Revisions
15	Inventories	Revisions
12	Aquatic toxicity, Aquatic invertebrates, Aquatic plants, Microorganisms, Biodegradation, Bioaccumulation, PBT assessment	Additions, Revisions
14	SECTION 14: TRANSPORT INFORMATION	Revisions
15	SECTION 15: REGULATORY INFORMATION, Water contaminating class (Germany), Inventories	Revisions
Exposure scenario		Revisions, Deletions

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).

1. Title of Exposure Scenario : Industrial use of dielectric fluids

Scenario description :CGES13_I: Use as functional fluids e.g. cable oils, transfer oils, coolants, insulators, refrigerants, hydraulic fluids in closed industrial equipment including incidental exposures during maintenance and related material transfers

Sector of use :	**Product category :**
SU16: Manufacture of computer, electronic and optical products, electrical equipment	**PC0:** Dielectric fluid
Environmental release category:	**Process category:**
ERC7: Industrial use of substances in closed systems	**PROC2**: Use in closed, continuous process with occasional controlled exposure, **PROC3**: Use in closed batch process (synthesis or formulation), **PROC4**: Use in batch and other process (synthesis) where opportunity for exposure arises, **PROC8a**: Transfer of substance or mixture (charging/discharging) at non dedicated-facilities, **PROC8b**: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities, **PROC9**: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)

2. Conditions of use - Exposure estimation and reference to its source

Control of environmental exposure :

General Information characteristic:

Liquid, vapour pressure < 10 Pa

Substance is a unique structure, Predominantly hydrophobic, PBT and vPvB assessment, Very toxic to aquatic life with long lasting effects.

Frequency and duration of use:

Number of emission days per year = 100

Environment factors not influenced by risk management:

Flow rate of receiving surface water : 18.000 m3/d

Negligible wastewater emissions as process operates without water contact., Risk from environmental exposure is driven by soil.

Operational conditions:

Continuous use/release :

Sludge Treatment : No application of sewage sludge to soil, Sewage sludge incineration

General risk management measures applicable to all activities:

Do not allow contact with soil, surface or ground water., Prevent leaks and prevent soil / water pollution caused by leaks. :

Air : Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

Water : The process does not use any water. Negligible wastewater emissions as process operates without water contact.

Soil : No exposure to agricultural soil.

Waste treatment methods : Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed. See chapter 13. Disposal considerations

External treatment and disposal of waste should comply with applicable local and/or national regulations.

External recovery and recycling of waste should comply with applicable local and/or national regulations.

3. Risk characterisation ratio:

Compartment:	Exposure Assessment Method:
All (environment)	CHESAR 3.7

Contributing Scenario	Annual amount per site	Emission or Release Factor: Air	Maximum concentration / release value:		Emission or Release Factor: Soil	Risk characterisation ratio:		Remarks
			Marine water	Fresh water		Water	Soil	
Industrial use of substances in closed systems	10 tonnes/year	0,01 kg/day	0,014 µg/lNo intentional release of the substance to waste water.	0,14 µg/lNo intentional release of the substance to waste water.	0,5 %	< 0,01	< 0,01	In addition to direct release in soil, soil risk characterization ratio is influenced by the deposition of air emission and sludge application (if permitted) to soil.

Control of worker exposure :

General Information characteristic:

Liquid, vapour pressure < 10 Pa

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Concentration of the Substance in Mixture/Article: Covers the percentage of the substance in the product up to 100 % (unless stated differently).

General risk management measures applicable to all activities:

Assumes a good basic standard of occupational hygiene is implemented. Assumes use at a temperature not exceeding 40°C (unless stated differently)
See chapter : 8. Exposure controls/personal protection
RCR are calculated by default for systemic effects (unless stated differently)
Indoor

Exposure routes:	Exposure Assessment Method:
All (worker)	CHESAR 3.7
All (worker)	The long term exposure assessment covers the short term effects.

Specific conditions :

Contributing Scenario	PROC	Operational conditions	Concentration of the Substance in Mixture/Article	Risk Management Measures	Conditions and measures related to personal protection, hygiene and health evaluation	Risk characterisation ratio: (Long term)			Risk characterisation ratio: (Short term)		
						Inhalation	Dermal	Combined routes	Inhalation	Dermal	Combined routes
Use in closed, continuous process with occasional controlled exposure	**PROC2**	Indoor		Closed batch process with occasional controlled exposure Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). (30 %)	Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. (95 %) Safety glasses with side-shields conforming to EN166	**0,1 - 0,5**	< 0,1	**0,1 - 0,5**			
Use in closed batch process (synthesis or formulation)	**PROC3**	Indoor		Closed continuous process with occasional controlled exposure Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). (30 %)	Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. (95 %) Safety glasses with side-shields conforming to EN166	**0,1 - 0,5**	< 0,1	**0,1 - 0,5**			
Use in batch and other process (synthesis) where opportunity for exposure arises	**PROC4**	Indoor		dermal Duration of contact : Avoid carrying out activities involving exposure for more than 15 minutes. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). (30 %) Provide extraction ventilation at points where emissions occur. (90 %) Closed batch process with occasional controlled exposure	Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. (95 %) Safety glasses with side-shields conforming to EN166	**< 0,1**	0,1 - 0,5	**0,1 - 0,5**			
Use in batch and other process (synthesis) where opportunity for exposure arises	**PROC4**	Indoor		Duration of contact dermal Avoid carrying out activities involving exposure for more than 15 minutes. Provide extraction ventilation at points where emissions occur. (95 %) Closed batch process with occasional controlled exposure Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). (30 %)	Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. (95 %) Safety glasses with side-shields conforming to EN166 Wear a respirator conforming to EN140 with Type A filter or better. (90 %)	**< 0,1**	0,1 - 0,5	**0,1 - 0,5**			

Transfer of substance or mixture (charging/discharging) at non dedicated-facilities	**PROC8a**	Indoor		Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). (30 %)	Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. (95 %) Wear a respirator conforming to EN140 with Type A filter or better. (90 %) Safety glasses with side-shields conforming to EN166	**0,1 - 0,5**	0,1 - 0,5	**0,5 - 0,75**			
Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities	**PROC8b**	Indoor		Duration of contact dermal Avoid carrying out activities involving exposure for more than 5 minutes. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). (30 %) Provide extraction ventilation at points where emissions occur. (95 %)	Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. (95 %) Safety glasses with side-shields conforming to EN166	**< 0,1**	0,1 - 0,5	**0,1 - 0,5**			
Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	**PROC9**	Indoor		Avoid carrying out operation for more than 4 hours. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). (30 %) Duration of contact dermal Avoid carrying out operation for more than 15 minutes. Provide extraction ventilation at points where emissions occur. (90 %)	Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. (95 %) Safety glasses with side-shields conforming to EN166	**< 0,1**	0,1 - 0,5	**0,1 - 0,5**			
Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	**PROC9**	Indoor		Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). (30 %) Duration of contact dermal Avoid carrying out operation for more than 15 minutes. Provide extraction ventilation at points where emissions occur. (90 %)	Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. (95 %) Safety glasses with side-shields conforming to EN166	**0,1 - 0,5**	0,1 - 0,5	**0,1 - 0,5**			

***LE** : Local effects, **SE** : Systemic effects*

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

The indicated recommendations may not be applicable to all sites. You may thus have to adapt them to your own site using scaling.
If scaling of the recommendations fails to demonstrate safe use, you should implement the indicated recommendations or carry out a downstream user Chemical Safety Assessment.

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

For a given contributing scenario, several risk management measures can be proposed. It is your responsibility to select the configuration that best suits your activity.

Thesaurus:

PROC : Process category
SU : Sectors of end-use
PC : Product category
ERC : Environmental release category

RCR : Risk characterisation ratio:
DNEL : Derived No Effect Level (DNEL)
PNEC : Predicted No Effect Concentration

NB: In this document the numerical separator of the thousands is the "." (point), the decimal separator is "," (comma).
This Exposure Scenario may not be exhaustive. Please contact your supplier should you need additional information.

1. Title of Exposure Scenario : Industrial use of dielectric fluids

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2. Conditions of use - Exposure estimation and reference to its source

Control of environmental exposure :

General Information characteristic:

Liquid, vapour pressure < 10 Pa

Substance is a unique structure, Predominantly hydrophobic, Not readily biodegradable.

Frequency and duration of use:

Number of emission days per year = 100

Environment factors not influenced by risk management:

Flow rate of receiving surface water : 18.000 m3/d

Negligible wastewater emissions as process operates without water contact., Risk from environmental exposure is driven by soil.

Operational conditions:

Continuous use/release :

Type of Sewage Treatment Plant : Not applicable as there is no release to wastewater. :

Sludge Treatment : No application of sewage sludge to soil, Sludge should be incinerated, contained or reclaimed.

General risk management measures applicable to all activities:

Air : Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soilWater : The process does not use any water. Do not contaminate water.Soil : Do not allow contact with soil, surface or ground water. Prevent leaks and prevent soil / water pollution caused by leaks.

Waste treatment methods : Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.

Dispose of waste product or used containers according to local regulations.

External recovery and recycling of waste should comply with applicable local and/or national regulations.

3. Risk characterisation ratio:

Compartment:	Exposure Assessment Method:
All (environment)	CHESAR 3.7

Contributing Scenario	Annual amount per site	Emission or Release Factor: Air	Maximum concentration / release value:		Emission or Release Factor: Soil	Risk characterisation ratio:		Remarks
			Marine water	Fresh water		Water	Soil	
Industrial use of substances in closed systems	1880 tonnes/year	937,5 kg/day	0,43 µg/kg dry weightNo effect up to the limit of solubility	331 µg/kg dry weightNo effect up to the limit of solubility		< 1	< 1	In addition to direct release in soil, soil risk characterization ratio is influenced by the deposition of air emission and sludge application (if permitted) to soil.

Control of worker exposure :

General Information characteristic:
Liquid, vapour pressure < 10 Pa

Frequency and duration of use: Covers daily exposures up to 8 hours (unless stated differently).

Concentration of the Substance in Mixture/Article: Covers the percentage of the substance in the product up to 100 %

General risk management measures applicable to all activities:
Assumes a good basic standard of occupational hygiene is implemented.
(unless stated differently) Provide a basic standard of general ventilation (1 to 3 air changes per hour).
See chapter : 8. Exposure controls/personal protection

Exposure routes:	Exposure Assessment Method:
All (worker)	CHESAR 3.7, The long term exposure assessment covers the short term effects.
Inhalation exposure	Advanced REACH Tool (ART)

Specific conditions :

Contributing Scenario	PROC	Operational conditions	Concentration of the Substance in Mixture/Article	Risk Management Measures	Conditions and measures related to personal protection, hygiene and health evaluation	Risk characterisation ratio: (Long term)			Risk characterisation ratio: (Short term)		
						Inhalation	Dermal	Combined routes	Inhalation	Dermal	Combined routes
Use in closed, continuous process with occasional controlled exposure	**PROC2**	Indoor		Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). (30 %)	Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. (95 %) Wear a respirator conforming to EN140 with Type A filter or better. (90 %) Safety glasses with side-shields conforming to EN166	**0,1 - 0,5 (SE)**	< 0,1 (SE) (LE, Not relevant)	0,1 - 0,5 (SE)			
Use in closed, continuous process with occasional controlled exposure	**PROC2**	Indoor		Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). (30 %) Provide appropriate exhaust ventilation at machinery. (95 %)	Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. (95 %) Safety glasses with side-shields conforming to EN166	**0,1 - 0,5 (SE)**	< 0,1 (SE) (LE, Not relevant)	0,1 - 0,5 (SE)			
Use in closed batch process (synthesis or formulation)	**PROC3**	Indoor		Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). (30 %)	Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. (95 %) Wear a respirator conforming to EN140 with Type A filter or better. (90 %) Safety glasses with side-shields conforming to EN166	**0,75 - 1**	< 0,1 (LE, Not relevant)	0,5 - 0,75			
Use in closed batch process (synthesis or formulation)	**PROC3**	Indoor		Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). (30 %) Provide appropriate exhaust ventilation at machinery. (95 %)	Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. (95 %) Safety glasses with side-shields conforming to EN166	**0,75 - 1 (SE)**	< 0,1 (SE) (LE, Not relevant)	0,75 - 1 (SE)			

Use in batch and other process (synthesis) where opportunity for exposure arises	**PROC4**	Indoor		Avoid carrying out operation for more than 4 hours. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). (30 %) Provide appropriate exhaust ventilation at machinery. (95 %)	Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. (95 %) Safety glasses with side-shields conforming to EN166	**0,75 - 1 (SE)**	0,1 - 0,5 (SE) (LE, Not relevant)	0,75 - 1 (SE)			
Use in batch and other process (synthesis) where opportunity for exposure arises	**PROC4**	Indoor		Avoid carrying out operation for more than 4 hours. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). (30 %)	Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. (95 %) Wear a respirator conforming to EN140 with Type A filter or better. (90 %) Safety glasses with side-shields conforming to EN166	**0,75 - 1 (SE)**	0,1 - 0,5 (SE) (LE, Not relevant)	0,75 - 1 (SE)			
Transfer of substance or mixture (charging/discharging) at non dedicated-facilities	**PROC8a**	Indoor		Avoid carrying out operation for more than 4 hours. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). (30 %)	Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. (95 %) Safety glasses with side-shields conforming to EN166	**0,1 - 0,5**	0,1 - 0,5 (LE, Not relevant)	0,1 - 0,5			
Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities	**PROC8b**	Indoor		Avoid carrying out operation for more than 4 hours. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). (30 %)	Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. (95 %) Safety glasses with side-shields conforming to EN166	**0,1 - 0,5**	0,1 - 0,5 (LE, Not relevant)	0,5 - 0,75			
Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	**PROC9**	Indoor		Avoid carrying out operation for more than 4 hours. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). (30 %)	Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. (95 %) Wear a respirator conforming to EN140 with Type A filter or better. (90 %) Safety glasses with side-shields conforming to EN166	**0,5 - 0,75**	0,1 - 0,5 (LE, Not relevant)	0,75 - 1			

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