Safety Data Sheet

according to Regulation (EC) No 1907/2006

ARC S4+(E) Part A

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

UFI: S4WG-5C1S-2W6V-C33Q

1.1. Product identifier

ARC S4+(E) Part A

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

Use of the substance/mixture

ARC Polymer Composite. To be mixed with ARC S4+(E) Part B to provide protection in corrosive environments.

Uses advised against

No information available.

1.3. Details of the supplier of the safety data sheet

Company name:	Chesterton International GmbH		
Street:	Am Lenzenfleck 23		
Place:	D-85737 Ismaning GERMANY		
Telephone:	+49 89 99 65 46 - 0	Telefax:	+49 89 99 65 46 - 50
e-mail:	eu-sds@chesterton.com		
Contact person:	eu-sds@chesterton.com	Telephone:	+49 89 99 65 46 - 0
e-mail:	eu-sds@chesterton.com		
Internet:	www.chesterton.com		
Responsible Department:	eu-sds@chesterton.com		

1.4. Emergency telephone number:

+49(0) 551 - 1 92 40 (GIZ-Nord, 24h)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Regulation (EC) No 1272/2008

Skin Irrit. 2; H315
Eye Irrit. 2; H319
Skin Sens. 1; H317
Aquatic Chronic 2; H411

Full text of hazard statements: see SECTION 16.

2.2. Label elements

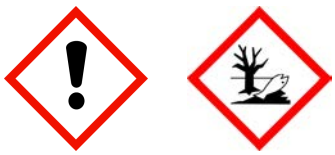
Regulation (EC) No 1272/2008

Hazard components for labelling

Phenol, polymer with formaldehyde, glycidether
Addition reaction products of conjugated sunflower-oil fatty acids and tall-oil fatty acids with maleic anhydride maleic anhydride

Signal word: Warning

Pictograms:



Hazard statements

H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H411	Toxic to aquatic life with long lasting effects.

Precautionary statements

P261	Avoid breathing dust/fume/gas/mist/vapours/spray.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.
P302+P352	IF ON SKIN: Wash with plenty of water.
P333+P313	If skin irritation or rash occurs: Get medical advice/attention.
P362+P364	Take off contaminated clothing and wash it before reuse.
P391	Collect spillage.
P501	Dispose of contents/container to an appropriate recycling or disposal facility.

2.3. Other hazards

The safety and health hazards are detailed separately for Part A and Part B. The final cured material is considered nonhazardous. Upon machining, refer to the precautions in the safety data sheets for Part A and Part B.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Hazardous components

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	Classification (Regulation (EC) No 1272/2008)			
28064-14-4	Phenol, polymer with formaldehyde, glycidether			70 - < 75 %
	608-164-0			
	Skin Irrit. 2, Eye Irrit. 2, Skin Sens. 1, Aquatic Chronic 2; H315 H319 H317 H411			
	Addition reaction products of conjugated sunflower-oil fatty acids and tall-oil fatty acids with maleic anhydride			< 1 %
			01-2119976378-19	
	Skin Irrit. 2, Skin Sens. 1; H315 H317			
108-31-6	maleic anhydride			< 0.1 %
	203-571-6	607-096-00-9	01-2119463268-32	
	Acute Tox. 4, Skin Corr. 1B, Eye Dam. 1, Resp. Sens. 1, Skin Sens. 1A, STOT RE 1; H302 H314 H318 H334 H317 H372 EUH071			

Full text of H and EUH statements: see section 16.

Specific Conc. Limits, M-factors and ATE

CAS No	EC No	Chemical name	Quantity
	Specific Conc. Limits, M-factors and ATE		
28064-14-4	608-164-0	Phenol, polymer with formaldehyde, glycidether	70 - < 75 %
	dermal: LD50 = >2000 mg/kg; oral: LD50 = >2000 mg/kg		
		Addition reaction products of conjugated sunflower-oil fatty acids and tall-oil fatty acids with maleic anhydride	< 1 %
	oral: LD50 = > 2000 mg/kg		
108-31-6	203-571-6	maleic anhydride	< 0.1 %
	dermal: LD50 = 2620 mg/kg; oral: LD50 = 1090 mg/kg Skin Sens. 1A; H317: >= 0,001 - 100		

SECTION 4: First aid measures

4.1. Description of first aid measures

General information

Change contaminated, saturated clothing. In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).

After inhalation

Remove casualty to fresh air and keep warm and at rest. If breathing is irregular or stopped, administer artificial respiration.

After contact with skin

After contact with skin, wash immediately with plenty of water and soap. Remove contaminated, saturated clothing immediately. In case of skin irritation, consult a physician.

Do not wash with: Solvents/Thinner

After contact with eyes

In case of contact with eyes flush immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart and consult an ophthalmologist.

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

After ingestion

If accidentally swallowed rinse the mouth with plenty of water (only if the person is conscious) and obtain immediate medical attention. Let 1 glass of water be drunken in little sips (dilution effect).

Do NOT induce vomiting.

4.2. Most important symptoms and effects, both acute and delayed

No information available.

4.3. Indication of any immediate medical attention and special treatment needed

First Aid, decontamination, treatment of symptoms.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

- alcohol resistant foam
- Water spray jet
- Carbon dioxide (CO2)
- Dry extinguishing powder

Unsuitable extinguishing media

- Full water jet

5.2. Special hazards arising from the substance or mixture

In case of fire may be liberated:

- Carbon monoxide
- Carbon dioxide
- Nitrogen oxides (NOx)

5.3. Advice for firefighters

Co-ordinate fire-fighting measures to the fire surroundings.
In case of fire: Wear self-contained breathing apparatus.

Special protective equipment for firefighters: Protective clothing.

Additional information

Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.
Dispose of waste according to applicable legislation.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General advice

Provide adequate ventilation.
Remove persons to safety.
Safe handling: see section 7
Personal protection equipment: see section 8

6.2. Environmental precautions

Do not allow to enter into surface water or drains. Cover drains. Adverse environmental effects

6.3. Methods and material for containment and cleaning up

For containment

Absorb with liquid-binding material (sand, diatomaceous earth, acid- or universal binding agents). Treat the recovered material as prescribed in the section on waste disposal.

6.4. Reference to other sections

Safe handling: see section 7
Personal protection equipment: see section 8
Disposal: see section 13

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling

Personal protection equipment: see section 8
Do not breathe vapour/aerosol.
Avoid contact with skin, eyes and clothes.

Advice on protection against fire and explosion

Keep away from sources of heat (e.g. hot surfaces), sparks and open flames.

Advice on general occupational hygiene

Work in well-ventilated zones or use proper respiratory protection. Only wear fitting, comfortable and clean protective clothing. Avoid contact with skin, eyes and clothes. Wash hands and face before breaks and after work and take a shower if necessary.

Further information on handling

Wash hands before breaks and after work. Only wear fitting, comfortable and clean protective clothing. Used working clothes should not be worn outside the work area. Street clothing should be stored separately from work clothing.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

Keep container tightly closed in a cool, well-ventilated place. Keep/Store only in original container.

Further information on storage conditions

Keep away from:
- Frost
- Heat
- Humidity

7.3. Specific end use(s)

No information available.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits

CAS No	Substance	ppm	mg/m³	fib/cm³	Category	Origin
108-31-6	Maleic anhydride (Inhalable Fraction and Vapour)	0.01	-		TWA (8 h)	

DNEL/DMEL values

CAS No	Substance			
DNEL type		Exposure route	Effect	Value
28064-14-4	Phenol, polymer with formaldehyde, glycidether			
Worker DNEL,		dermal		104,15 mg/kg bw/day
Worker DNEL,		inhalation		29,39 mg/m³
108-31-6	maleic anhydride			
Worker DNEL, long-term		inhalation	systemic	0,081 mg/m³
Worker DNEL, acute		inhalation	systemic	0,2 mg/m³
Worker DNEL, long-term		inhalation	local	0,081 mg/m³
Worker DNEL, acute		inhalation	local	0,2 mg/m³

PNEC values

CAS No	Substance
Environmental compartment	Value
108-31-6	maleic anhydride
Freshwater	0,038 mg/l
Freshwater (intermittent releases)	0,379 mg/l
Marine water	0,004 mg/l
Freshwater sediment	0,296 mg/kg
Marine sediment	0,03 mg/kg
Micro-organisms in sewage treatment plants (STP)	44,6 mg/l
Soil	0,037 mg/kg

8.2. Exposure controls

Appropriate engineering controls

Provide adequate ventilation as well as local exhaustion at critical locations.

Individual protection measures, such as personal protective equipment

Eye/face protection

Suitable eye protection:
- Eye glasses with side protection
- goggles

Hand protection

Tested protective gloves must be worn: EN ISO 374
NBR (Nitrile rubber),
Wearing time with permanent contact: Thickness of the glove material: >= 0,4 mm, Breakthrough time: >480 min
Wearing time with occasional contact (splashes): Thickness of the glove material: >= 0,1 mm, Breakthrough time: > 30 min
For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.
Breakthrough times and swelling properties of the material must be taken into consideration.

Skin protection

For the protection against direct skin contact, body protective clothing is essential (in addition to the usual working clothes).

Wear suitable protective clothing.

Respiratory protection

Usually no personal respirative protection necessary.
If technical exhaust or ventilation measures are not possible or insufficient, respiratory protection must be worn.
Combination filtering device A-P3
Self-contained respirator (breathing apparatus)

Thermal hazards

No data available

Environmental exposure controls

Do not allow to enter into surface water or drains.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state:	Liquid
Colour:	grey; red
Odour:	characteristic

		Test method
Melting point/freezing point:	No data available	
Boiling point or initial boiling point and boiling range:	No data available	
Flammability		
Solid/liquid:	No data available	
Lower explosion limits:	No data available	

Upper explosion limits:	not applicable	
Flash point:	> 93 °C	
Auto-ignition temperature:	No data available	
Decomposition temperature:	No data available	
pH-Value:	No data available	
Water solubility:	Immiscible	

Solubility in other solvents

No information available.

Partition coefficient n-octanol/water:	No data available	
Vapour pressure:	No data available	
Density:	1,23 g/cm³	
Relative vapour density:	> 1	(Air = 1)

9.2. Other information

Information with regard to physical hazard classes

Explosive properties

No information available.

Sustaining combustion:	Not sustaining combustion	

Self-ignition temperature

Solid:	No data available	
Gas:	No data available	

Oxidizing properties

No information available.

Other safety characteristics

Evaporation rate:	< 1	(Ether = 1)
Viscosity / dynamic: (at 25 °C)	9000 mPa·s	

Further Information

No information available.

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is stable under storage at normal ambient temperatures.

10.2. Chemical stability

Does not decompose when used for intended uses. No known hazardous decomposition products.

10.3. Possibility of hazardous reactions

Exothermic reaction with: Acid, Oxidising agent

10.4. Conditions to avoid

Keep away from sources of heat (e.g. hot surfaces), sparks and open flames.

10.5. Incompatible materials

Acid, Oxidising agent

10.6. Hazardous decomposition products

Does not decompose when used for intended uses.

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity

Based on available data, the classification criteria are not met.

CAS No	Chemical name					
	Exposure route	Dose		Species	Source	Method
28064-14-4	Phenol, polymer with formaldehyde, glycidether					
	oral	LD50 mg/kg	>2000	Rat		
	dermal	LD50 mg/kg	>2000	Rabbit		
	Addition reaction products of conjugated sunflower-oil fatty acids and tall-oil fatty acids with maleic anhydride					
	oral	LD50 mg/kg	> 2000	Rat	Study report (2012)	OECD Guideline 423
108-31-6	maleic anhydride					
	oral	LD50 mg/kg	1090	Rat	SIDS Initial Assessment Report for SIAM	OECD Guideline 401
	dermal	LD50 mg/kg	2620	Rabbit	Toxicol. Appl. Pharmacol. 42, 417-424 (1	The method used for skin absorption toxi

Irritation and corrosivity

Causes skin irritation.

Causes serious eye irritation.

Sensitising effects

May cause an allergic skin reaction. (Phenol, polymer with formaldehyde, glycidether; Addition reaction products of conjugated sunflower-oil fatty acids and tall-oil fatty acids with maleic anhydride; maleic anhydride)

Carcinogenic/mutagenic/toxic effects for reproduction

Based on available data, the classification criteria are not met.

STOT-single exposure

Based on available data, the classification criteria are not met.

STOT-repeated exposure

Based on available data, the classification criteria are not met.

Aspiration hazard

Based on available data, the classification criteria are not met.

11.2. Information on other hazards

Endocrine disrupting properties

No data available

SECTION 12: Ecological information

12.1. Toxicity

Toxic to aquatic life with long lasting effects.

CAS No	Chemical name						
	Aquatic toxicity	Dose		[h] | [d]	Species	Source	Method
28064-14-4	Phenol, polymer with formaldehyde, glycidether						
	Acute fish toxicity	LC50	2,54 mg/l	96 h	Leuciscus idus (golden orfe)		
	Acute crustacea toxicity	EC50	2,55 mg/l	48 h	Daphnia magna (Big water flea)		
	Addition reaction products of conjugated sunflower-oil fatty acids and tall-oil fatty acids with maleic anhydride						
	Acute algae toxicity	ErC50	> 100 mg/l	72 h	Pseudokirchneriella subcapitata	Study report (2013)	OECD Guideline 201
	Acute crustacea toxicity	EC50	> 100 mg/l	48 h	Daphnia magna	Study report (2013)	OECD Guideline 202
	Acute bacteria toxicity	(EC50	> 1000 mg/l)	3 h	activated sludge of a predominantly domestic sewag	Study report (2012)	OECD Guideline 209
108-31-6	maleic anhydride						
	Acute fish toxicity	LC50	75 mg/l	96 h	Lepomis macrochirus	Publication (1982)	other: EPA-660/3-75-009, EPA Methods for
	Acute algae toxicity	ErC50	74,35 mg/l	72 h	Raphidocelis subcapitata	REACh Registration Dossier	OECD Guideline 201
	Acute crustacea toxicity	EC50	42,81 mg/l	48 h	Daphnia magna	REACh Registration Dossier	OECD Guideline 202
	Crustacea toxicity	NOEC	10 mg/l	21 d	Daphnia magna	Publication (1988)	other: Prolonged toxicity test according

12.2. Persistence and degradability

No information available.

12.3. Bioaccumulative potential

Partition coefficient n-octanol/water

CAS No	Chemical name	Log Pow
	Addition reaction products of conjugated sunflower-oil fatty acids and tall-oil fatty acids with maleic anhydride	< 1
108-31-6	maleic anhydride	-2,61

12.4. Mobility in soil

No information available.

12.5. Results of PBT and vPvB assessment

The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, annex XIII.

12.6. Endocrine disrupting properties

This product does not contain a substance that has endocrine disrupting properties with respect to non-target organisms as no components meets the criteria.

12.7. Other adverse effects

No information available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Disposal recommendations

Dispose of waste according to applicable legislation.

Contaminated packaging

Non-contaminated packages may be recycled. Dispose of waste according to applicable legislation.

SECTION 14: Transport information

Land transport (ADR/RID)

14.1. UN number or ID number:	UN 3082
14.2. UN proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (epoxy resin)
14.3. Transport hazard class(es):	9
14.4. Packing group:	III
Hazard label:	9
Classification code:	M6
Special Provisions:	274 335 375 601
Limited quantity:	5 L
Excepted quantity:	E1
Transport category:	3
Hazard No:	90
Tunnel restriction code:	-

Inland waterways transport (ADN)

14.1. UN number or ID number:	UN 3082
14.2. UN proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (epoxy resin)

14.3. Transport hazard class(es):	9
14.4. Packing group:	III
Hazard label:	9
Classification code:	M6
Special Provisions:	274 335 375 601
Limited quantity:	5 L
Excepted quantity:	E1

Marine transport (IMDG)

14.1. UN number or ID number:	UN 3082
14.2. UN proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (epoxy resin)
14.3. Transport hazard class(es):	9
14.4. Packing group:	III
Hazard label:	9
Special Provisions:	274 335 969
Limited quantity:	5 L
Excepted quantity:	E1
EmS:	F-A, S-F

Air transport (ICAO-TI/IATA-DGR)

14.1. UN number or ID number:	UN 3082
14.2. UN proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (epoxy resin)
14.3. Transport hazard class(es):	9
14.4. Packing group:	III
Hazard label:	9
Special Provisions:	A97 A158 A197 A215
Limited quantity Passenger:	30 kg G
Passenger LQ:	Y964
Excepted quantity:	E1
IATA-packing instructions - Passenger:	964
IATA-max. quantity - Passenger:	450 L
IATA-packing instructions - Cargo:	964
IATA-max. quantity - Cargo:	450 L

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS:	Yes
Danger releasing substance:	epoxy resin

14.6. Special precautions for user

No information available.

14.7. Maritime transport in bulk according to IMO instruments

No information available.

SECTION 15: Regulatory information

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

EU regulatory information

Restrictions on use (REACH, annex XVII):

Entry 3

Information according to 2012/18/EU (SEVESO III): E2 Hazardous to the Aquatic Environment

National regulatory information

Water hazard class (D): 2 - obviously hazardous to water

15.2. Chemical safety assessment

For the following substances of this mixture a chemical safety assessment has been carried out:
Phenol, polymer with formaldehyde, glycidether
Addition reaction products of conjugated sunflower-oil fatty acids and tall-oil fatty acids with maleic anhydride maleic anhydride

SECTION 16: Other information

Changes

This data sheet contains changes from the previous version in section(s): 4,5,6,7,8,9,11,12,14,15.

Abbreviations and acronyms

ADR: Accord européen sur le transport des marchandises dangereuses par Route
(European Agreement concerning the International Carriage of Dangerous Goods by Road)
RID:Règlement international conernat le transport des marchandises dangereuses par chemin de fer
(Regulations Concerning the International Transport of Dangerous Goods by Rail)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
IATA-DGR: Dangerous Goods Refulations by the "International Air Transport Association" (IATA)
ICAO: International Civil Aviation Organization
ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)
CAS: Chemical Abstracts Service (division of the American Chemical Society)
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
CLP: Regulation on Classification, Labelling and Packaging of Substances and Mixtures,
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
EC50: Effectice concentration, 50 percent
DNEL: Derived No Effect Level
PNEC: Predicted No Effect Concentration
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative

Classification for mixtures and used evaluation method according to Regulation (EC) No 1272/2008 [CLP]

Classification	Classification procedure
Skin Irrit. 2; H315	Calculation method
Eye Irrit. 2; H319	Calculation method
Skin Sens. 1; H317	Calculation method
Aquatic Chronic 2; H411	Calculation method

Relevant H and EUH statements (number and full text)

H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H372	Causes damage to organs through prolonged or repeated exposure.
H411	Toxic to aquatic life with long lasting effects.
EUH071	Corrosive to the respiratory tract.

(The data for the hazardous ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)