Parker Hannifin Ltd.
Engineered Materials Group
Chomerics Division Europe
Unit 6 Century Point Halifax Road
High Wycombe Bucks, HP12 3SL
United Kingdom
Telephone: 044 (0) 1494 455 400

SDS Revision Date (dd/mm/yyyy): 12/03/2026
Revision No.: 7

SAFETY DATA SHEET

This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006, as amended. This safety data sheet complies with the requirements of UK REACH Regulation.

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

1.1 Product identifier : **CHO-SHIELD® 2001, Part B**

Product Code(s) : 52-00-2001-0000; 52-00-2001-1000; 52-01-2001-0000; 52-03-2001-0000;52-04-2001-0000

UFI-0N20-F085-G007-PE83

SDS No. : PHC-031 EU

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

: Product component of a 3-part, conductive, copper-filled, solvent-based coating.
Intended for composite substrates.
Use pattern: professional use
Refer to restrictions found in Annex XVII, entry 74.

1.3 Details of the supplier of the safety data sheet:

Parker Hannifin Ltd.
Engineered Materials Group
Chomerics Division Europe
Unit 6 Century Point
Halifax Road
High Wycombe
Bucks, HP12 3SL
United Kingdom
E-mail: chomerics_europe@parker.com
Website: www.chomerics.com
Telephone: 044 (0) 1494 455 400

Parker Hannifin Manufacturing France SAS
ZAC des Epineaux
7 avenue Louis Blériot
95740 Frépillon, France
Telephone : 033 (01) 34 32 39 00
Email: parker.france@parker.com
Website: www.parkerfrance.fr

Telephone : 044 (0) 1494 455 400

1.4 Emergency Telephone Number

Parker Hannifin Ltd.
Engineered Materials Group
Chomerics Division Europe
Unit 6 Century Point Halifax Road
High Wycombe Bucks, HP12 3SL
United Kingdom
Telephone: 044 (0) 1494 455 400

SAFETY DATA SHEET

This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006, as amended. This safety data sheet complies with the requirements of UK REACH Regulation.

: INFOTRAC: (800) 535-5053 (US and Canada); + 001 (352) 323-3500 (International)
Poisons Information Centre
The United Kingdom NHS 111
France +33383852192
The Netherlands +31887558561
Germany +493018412-0
Poland +48422538400
Spain +34917689800
Sweden +46104566750
Italy
06 68593726 (CAV “Osp. Pediatrico Bambino Gesu” Dip. Emergenza - Roma) 800 183459 (Az. Osp. Univ. Foggia - Foggia)
081 5453333 (Az. Osp. "A. Cardarelli" - Napoli)
06 49978000 (CAV Policlinico "Umberto I" - Roma)
06 3054343 (CAV Policlinico "A. Gemelli" - Roma)
055 7947819 (Az. Osp. "Careggi" U.O. Tossicologia Medica - Firenze)
0382 24444 (CAV Centro Nazionale di Informazione Tossicologica - Pavia) 02 66101029 (Osp. Niguarda Ca' Granda - Milano)
800 883300 (Azienda Ospedaliera Papa Giovanni XXII - Bergamo)

1.5 National Contact

: E-mail: chomerics_europe@parker.com
Website: www.chomerics.com

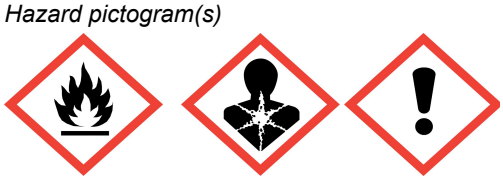
SECTION 2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Clear yellow liquid. Solvent odour.
Most important hazards:
Flammable liquid and vapour. May be ignited by open flame.
Harmful if inhaled. Causes skin irritation. May cause an allergic skin reaction. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause respiratory irritation. Occupational exposure to the substance or mixture may cause adverse effects. For further information, please refer to section 11 of the SDS.
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. See Section 12 for more environmental information.
This mixture is classified as hazardous in accordance with Regulation (EC) No 1272/2008. Classification:
Flammable liquid - Category 3; H226
Acute toxicity (Inhalation Category 4) ; H332
Skin corrosion/irritation - Category 2; H315
Skin sensitization - Category 1; H317
Respiratory sensitization - Category 1; H334
Specific target organ toxicity, single exposure - Category 3; H335
Endocrine Disruptor - Category 1; EUH380

2.2 Label elements

Hazard pictogram(s)



SAFETY DATA SHEET

This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006, as amended. This safety data sheet complies with the requirements of UK REACH Regulation.

Hazardous components which must be listed on the label: Hexamethylene diisocyanate, oligomers; Xylene;;Hexamethylene diisocyanate .

Signal word:
Danger

Hazard statements:
H226 - Flammable liquid and vapour.
H332 - Harmful if inhaled.
H315 - Causes skin irritation.
H317 - May cause an allergic skin reaction.
H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335 - May cause respiratory irritation.
EUH380 - May cause endocrine disruption in humans.

Precautionary statements
P201 - Obtain special instructions before use.
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P261 - Avoid breathing mist or vapours.
P280 - Wear protective gloves and eye/face protection.
P284 - Wear respiratory protection.
P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P311 - Call a POISON CENTER or doctor/physician.
P370 + P378 - In case of fire, use dry chemical, CO2 or 'alcohol foam' to extinguish.
P403 + P233 - Store in a well-ventilated area. Keep container tightly closed.
P501 - Dispose of contents or container in accordance with local regulation.

Supplemental Hazard Statements
EUH210 - Safety data sheet available on request.
As from 24 August 2023 adequate training is required before industrial or professional use.

2.3 Other hazards

Other hazards which do not result in classification:
Polymerization may occur at elevated temperatures in the presence of: tertiary amines; Alkalies May react with water. Burning produces obnoxious and toxic fumes. May cause mild eye irritation. Causes brown discolouration of the skin. May cause gastrointestinal irritation. Prolonged overexposure may cause slight kidney effects, such as increased organ weight.

Endocrine disrupting properties: May cause endocrine disruption.

PBT assessment:
This mixture contains no substance considered to be persistent, bioaccumulating nor toxic (PBT).

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Not applicable

3.2 Mixtures

Chemical nature - Mixture of: Isocyanates; Solvent.

The following substances shall be indicated according to legislation:

SAFETY DATA SHEET

This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006, as amended. This safety data sheet complies with the requirements of UK REACH Regulation.

Substance name	CAS No	EC No.	Reach Registration No.	% Weight	Classification according to Regulation (EC) nr. 1272/2008	SCL, M-factor, ATE
Hexamethylene diisocyanate, oligomers	28182-81-2	500-060-2	Present	**70.0 - 80.0**	Acute Tox. 4; H332 Skin Sens. 1; H317 STOT SE 3; H335 (self classified)	Not available
n-Butyl acetate	123-86-4	204-658-1	Present	**7.0 - 13.0**	Flam. Liq. 3; H226 STOT SE 3; H336 EUH066	Not applicable.
Xylene	1330-20-7	215-535-7	Present	**7.0 - 13.0**	Flam. Liq. 3; H226 *Acute Tox. 4; H312 *Acute Tox. 4; H332 Skin Irrit. 2; H315	Not applicable.
Ethylbenzene	100-41-4	202-849-4	Present	**1.0 - 5.0**	Flam. Liq. 2; H225 Acute Tox. 4; H332 STOT RE 2; H373 (hearing organs) Asp. Tox. 1; H304	Not applicable.
Hexamethylene diisocyanate	822-06-0	212-485-8	Present	**0.1 - 1.0**	**Acute Tox. 1; H330 **Acute Tox. 4; H302 Skin Irrit. 2; H315 Eye Irrit. 2; H319 Resp. Sens. 1; H334 Skin Sens. 1; H317 STOT SE 3; H335	C ≥ 0.5 % Resp. Sens. 1 H334; C ≥ 0.5 % Skin Sens. 1 H317

Note:
*The above CLP Acute toxicity Classifications for the following chemicals are 'Minimum Classifications': Xylene
**The classifications listed are in addition to those appearing in Annex VI of Regulation (EC) No. 1272/2008. Hexamethylene diisocyanate

For the full text of the H phrases not mentioned in this Section or in Section 2, see Section 16.

SECTION 4. FIRST-AID MEASURES

SAFETY DATA SHEET

This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006, as amended. This safety data sheet complies with the requirements of UK REACH Regulation.

4.1 Description of first aid measures

Ingestion : Do not induce vomiting. Never give anything by mouth to a person who is unconscious or is having convulsions. When symptoms persist or in all cases of doubt, seek medical advice.

Inhalation : IF INHALED: Remove person to fresh air and keep comfortable for breathing. If breathing is difficult, give oxygen by qualified medical personnel only. If breathing has stopped, give artificial respiration. Call a POISON CENTER or doctor/physician.

Skin contact : IF ON SKIN: Wash with plenty of soap and water. If skin irritation or rash occurs: Get medical attention. Take off contaminated clothing and wash it before reuse.

Eye contact : Rinse immediately with plenty of water, also under the eyelids. When symptoms persist or in all cases of doubt, seek medical advice.

4.1.2 Self-protection for the first aider

: Wear protective gloves and eye, face protection.

4.2 Most important symptoms and effects, both acute and delayed

: Harmful if inhaled. Symptoms may include eye and nose irritation, dry or sore throat, runny nose, shortness of breath and wheezing. Coughing with chest pain or tightness may also occur. Higher concentrations could cause inflammation of the lung tissue (chemical pneumonitis), chemical bronchitis with severe asthma-like wheezing, severe coughing spasms and accumulation of fluid in the lungs (pulmonary edema). Symptoms of pulmonary edema (chest pain, shortness of breath) may be delayed.
Causes skin irritation. Contact may cause redness, swelling and a painful sensation.
May cause severe skin sensitization with allergic contact dermatitis symptoms such as swelling, rash and eczema.
May cause allergic respiratory reaction (sensitization) with asthmatic symptoms such as wheezing and chest tightness.
May cause mild eye irritation. Symptoms may include stinging and tearing.
Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.
Ingestion of larger amounts may cause defects to the central nervous system (e.g. dizziness, headache).
Contains material which may cause cancer, based on animal data.
Causes brown discolouration of the skin.
Prolonged overexposure may cause slight kidney effects, such as increased organ weight.

4.3 Indication of any immediate medical attention and special treatment needed

: Provide general supportive measures and treat symptomatically.
Contains isocyanates. See information supplied by the manufacturer. Symptoms of poisoning may not appear for several hours. Keep under medical supervision for at least 48 hours.

SECTION 5. FIRE-FIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media

: Carbon dioxide (CO2); Dry chemical; Alcohol resistant foam.

Unsuitable extinguishing media

: May react with water. Do not use water if possible.

5.2 Special hazards arising from the substance or mixture

: Flammable liquid and vapour. May be ignited by open flame.
May react with water, generating heat. Polymerization may occur at elevated temperatures in the presence of: tertiary amines; Alkalies The pressure in sealed containers can increase under the influence of heat. Burning produces obnoxious and toxic fumes. In the event of fire the following can be released: Carbon oxides.; Hydrogen cyanide (hydrocyanic acid); Nitrogen oxides (NOx); Aldehydes.

5.3 Advice for firefighters

SAFETY DATA SHEET

This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006, as amended. This safety data sheet complies with the requirements of UK REACH Regulation.

Protective equipment for fire-fighters

: Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA. Firefighters should wear proper protective equipment and self-contained breathing apparatus with full face piece operated in positive pressure mode.

Special fire-fighting procedures

: Move containers from fire area if safe to do so. Cool closed containers exposed to fire with water spray. Do not get water inside containers. Do not allow run-off from fire fighting to enter drains or water courses. Dike for water control.

SECTION 6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

: Keep people away from and upwind of spill/leak. Restrict access to area until completion of clean-up. Wear appropriate protective equipment.

6.2 Environmental precautions

: Avoid release to the environment. Prevent product from entering drains, sewers, waterways and soil. If necessary, dike well ahead of the spill to prevent runoff into drains, sewers, or any natural waterway or drinking supply.

6.3 Methods and material for containment and cleaning up

: Ventilate the area. Remove all sources of ignition. Prevent further leakage or spillage if safe to do so.
Small Spills:
For spilled liquids: absorb spill with inert, non-combustible material such as sand, then place into suitable containers. Do not use combustible absorbents, such as sawdust. Pick up and transfer to properly labeled containers. Move containers to safe, well-ventilated area. Saturate absorbent material with neutralization solution and mix. Mix well. Repeat applications of decontamination solution, with scrubbing, followed by absorbent until the surface is decontaminated. Apply lid loosely and allow containers to vent for 72 hours to let carbon dioxide (CO_2) escape.

Decontamination solution(s):
Mixture of ammonium hydroxide (0-10%), detergent (2-5%), isopropanol (0-20%).

Large Spills: Contact the proper local authorities.

Never return spills in original containers for re-use.

After allowing material to harden, dispose in accordance with good industrial practice and in compliance with all applicable environmental regulations.

6.4 Reference to other sections

: Refer to protective measures listed in sections 7 and 8. Refer to Section 13 for disposal of contaminated material.

SECTION 7. HANDLING AND STORAGE

7.1 Precautions for safe handling

SAFETY DATA SHEET

This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006, as amended. This safety data sheet complies with the requirements of UK REACH Regulation.

: Persons allergic to isocyanates, and particularly those suffering from asthma or other respiratory conditions, should not work with isocyanates. Persons with a history of skin sensitisation problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this preparation is being used. This product should not be used under conditions of poor ventilation unless a protective mask with an appropriate gas filter (i.e. type A1 according to standard EN 14387) is used. Medical supervision of employees who come into contact with respiratory sensitizers is recommended.
Use only outdoors or in a well-ventilated area. Wear suitable protective equipment during handling. Wear protective gloves and eye, face protection. Wear respiratory protection. Avoid breathing mist or vapours. Avoid contact with skin, eyes and clothing. Keep away from heat, sparks and open flame - No smoking. Ground and bond container and receiving equipment. Use explosion-proof electrical and ventilating equipment. Use non-sparking tools. Take action to prevent static discharges. Keep away from incompatibles. Keep containers tightly closed when not in use. Wash hands thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace. Empty containers retain residue (liquid and/or vapour) and can be dangerous.

7.2 Conditions for safe storage, including any incompatibilities

: Store in cool/well-ventilated place. Store locked up. Storage area should be clearly identified, clear of obstruction and accessible only to trained and authorized personnel. Inspect periodically for damage or leaks. No smoking. Have appropriate fire extinguishers and spill clean-up equipment in or near storage area. Do not store near any incompatible materials (see Section 10). Keep containers dry and tightly closed to avoid moisture absorption and contamination. Store at temperatures between 5°C-21°C

7.3 Specific end use(s) : Coating

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control Parameters

Exposure Limits:

Chemical Name	Exposure Limits	Type	Notes
Hexamethylene diisocyanate, oligomers			
	0.01 ppm (0.075 mg/m³) (TWA) 0.02 ppm (0.15 mg/m³) (STEL)	France (OEL)	Hexamethylene diisocyanate Respiratory sensitiser
	0.005 ppm (0.035 mg/m³) (ceiling factor 2, exposure factor 1) (TWA)	Germany (OEL)	1,6-Hexamethylene diisocyanate Respiratory sensitiser
	0.035 mg/m³ (TWA) 0.035 mg/m³ (STEL)	Hungary (OEL)	Hexamethylene diisocyanate Sensitiser irritating
	0.04 mg/m³ (TWA) 0.08 mg/m³ (STEL)	Poland (OEL)	Hexamethylene diisocyanate

SAFETY DATA SHEET

This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006, as amended. This safety data sheet complies with the requirements of UK REACH Regulation.

	0.005 ppm (0.035 mg/m³) (TWA)	Spain (OEL)	1,6-Hexamethylene diisocyanate Sensitiser
	0.02 mg/m³ (TWA) 0.07 mg/m³ (STEL)	The United Kingdom (WELs)	Isocyanates Sensitiser
n-Butyl acetate	150 ppm (720 mg/m³) (TWA) 200 ppm (960 mg/m³) (STEL)	Finland (OEL)	None.
	150 ppm (710 mg/m³) (TWA) 200 ppm (940 mg/m³) (STEL)	France (OEL)	None.
	62 ppm (300 mg/m³) (exposure factor 2) (TWA)	Germany (OEL)	None.
	950 mg/m³ (TWA) 950 mg/m³ (STEL)	Hungary (OEL)	irritating Sensitiser
	150 ppm (TWA) 200 ppm (STEL)	Italy (OEL)	Recommended exposure limit based on ACGIH TLVs
	Not available	Netherlands (OEL)	Not available
	200 mg/m³ (TWA) 950 mg/m³ (STEL)	Poland (OEL)	None.
	150 ppm (724 mg/m³) (TWA) 200 ppm (965 mg/m³) (STEL)	Spain (OEL)	None.
	100 ppm LLV; 500 mg/m³ LLV;150 ppm STV; 700 mg/m³ STV;	Sweden (OEL)	Not available
	150 ppm (724 mg/m³) (TWA) 200 ppm (966 mg/m³) (STEL)	The United Kingdom (WELs)	None.
Xylene	50 ppm (221 mg/m³) (TWA) 100 ppm (442 mg/m³) (STEL)	European Union (OEL)	Possibility of significant uptake through the skin
	50 ppm (220 mg/m³) (TWA) 100 ppm (440 mg/m³) (STEL)	Finland (OEL)	Potential for cutaneous absorption
	50 ppm (221 mg/m³) (TWA) 100 ppm (442 mg/m³) (STEL)	France (OEL)	Risk of cutaneous absorption
	100 ppm (440 mg/m³) (exposure factor 2) (TWA)	Germany (OEL)	Skin notation
	221 mg/m³ (TWA) 442 mg/m³ (STEL)	Hungary (OEL)	Potential for cutaneous absorption
	50 ppm (221 mg/m³) (TWA) 100 ppm (442 mg/m³) (STEL)	Italy (OEL)	Skin - Potential for cutaneous absorption
	210 mg/m³ (TWA) 442 mg/m³ (STEL)	Netherlands (OEL)	Skin notation
	100 mg/m³ (TWA)	Poland (OEL)	Skin notation
	50 ppm (221 mg/m³) (TWA) 100 ppm (442 mg/m³) (STEL)	Spain (OEL)	Skin - Potential for cutaneous absorption

SAFETY DATA SHEET

This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006, as amended. This safety data sheet complies with the requirements of UK REACH Regulation.

	50 ppm (221 mg/m³) (TWA) 100 ppm (442 mg/m³) (STEL)	Sweden (OEL)	Skin notation
	50 ppm (220 mg/m³) (TWA) 100 ppm (441 mg/m³) (STEL)	The United Kingdom (WELs)	Potential for cutaneous absorption
Ethylbenzene			
	100 ppm (442 mg/m³) (TWA) 200 ppm (884 mg/m³) (STEL)	European Union (OEL)	Possibility of significant uptake through the skin
	20 ppm (88.4 mg/m³) (TWA) 100 ppm (442 mg/m³) (STEL)	France (OEL)	Risk of cutaneous absorption
	20 ppm (88 mg/m³) (exposure factor 2) (TWA)	Germany (OEL)	Skin notation
	100 ppm (442 mg/m³) (TWA) 200 ppm (884 mg/m³) (STEL)	Italy (OEL)	Skin - Potential for cutaneous absorption
	200 mg/m³ (TWA) 400 mg/m³ (STEL)	Poland (OEL)	Skin notation
	100 ppm (441 mg/m³) (TWA) 200 ppm (884 mg/m³) (STEL)	Spain (OEL)	Skin - Potential for cutaneous absorption
	50 ppm (200 mg/m³) (TWA) 100 ppm (450 mg/m³) (STEL)	Sweden (OEL)	None.
	100 ppm (441 mg/m³) (TWA) 125 ppm (552 mg/m³) (STEL)	The United Kingdom (WELs)	Potential for cutaneous absorption
Hexamethylene diisocyanate			
	0.01 ppm (0.075 mg/m³) (TWA) 0.02 ppm (0.15 mg/m³) (STEL)	France (OEL)	Respiratory sensitiser
	0.005 ppm (0.035 mg/m³) (ceiling factor 2, exposure factor 1) (TWA)	Germany (OEL)	Respiratory sensitiser
	0.035 mg/m³ (TWA) 0.035 mg/m³ (STEL)	Hungary (OEL)	Sensitiser
	Not available	Netherlands (OEL)	Not available
	0.04 mg/m³ (TWA) 0.08 mg/m³ (STEL)	Poland (OEL)	None.
	0.005 ppm (0.035 mg/m³) (TWA)	Spain (OEL)	Sensitiser
	0.002 ppm LLV; 0.02 mg/m³ LLV;;0.005 ppm CLV (5 min); 0.03 mg/m³ CLV (5 min)	Sweden (OEL)	Not available
	0.02 mg/m³ (TWA) 0.07 mg/m³ (STEL)	The United Kingdom (WELs)	Isocyanates Sensitiser

Biological Exposure Indices:

Chemical Name	Biological Exposure Indices	Type
Xylene		

SAFETY DATA SHEET

This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006, as amended. This safety data sheet complies with the requirements of UK REACH Regulation.

	5 mmol/L ,Determinant: Methylhippuric acid, Specimen: Urine	Finland. HTP-arvot, App 2, Biological Limit Values, (BRA/BGV), Social Affairs and Ministry of Health
	1.5 mg/L, Determinant: Xylene, Specimen: Blood 2000 mg/L, Determinant: Methylhippuric(tolur-) acid, Specimen: Urine	Germany. TRGS 903, BAT List (Biological Limit Values)
	650 mmol/mol Creatinine, Determinant: Methylhippuric acid, Specimen: Urine	UK. EH40 Biological Monitoring Guidance Values (BMGVs)
	1500 mg/g Creatinine, Determinant: Methylhippuric acid, Specimen: Urine	France. Biological indicators of exposure (IBE) (National Institute for Research and Security (INRS, ND 2065)
	1500 mg/g Creatinine, Determinant: Methylhippuric acid, Specimen: Urine 860 µmol/mmol Creatinine, Determinant: Methylhippuric acid, Specimen: Urine	Hungary. Chemical Safety at Workplace Ordinance Joint Decree No. 25/2000 (Annex 2): Permissible limit values of biological exposure (effect) indices
	1 g/g Creatinine, Determinant: Methylhippuric acid, Specimen: Urine	Spain. Biological Limit Values (VLBs), Occupational Exposure Limits for Chemical Agents, Table 4
Ethylbenzene		
	300 mg/g, Determinant: Mandelic acid plus Phenylglyoxylic acid, Specimen: Urine	Germany. TRGS 903, BAT List (Biological Limit Values)
	700 mg/g Creatinine, Determinant: Mandelic acid plus Phenylglyoxylic acid, Specimen: Urine	Spain. Biological Limit Values (VLBs), Occupational Exposure Limits for Chemical Agents, Table 4
	1500 mg/g Creatinine, Determinant: Mandelic acid (Non-specific (observed after the exposure to other substances)), Specimen: Urine	France. Biological indicators of exposure (IBE) (National Institute for Research and Security (INRS, ND 2065)
Hexamethylene diisocyanate		
	15 µg/g, Determinant: Hexamethylene diamine (after hydrolysis, measured as µg/g Creatinine), Specimen: Urine	Germany. TRGS 903, BAT List (Biological Limit Values)

SAFETY DATA SHEET

This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006, as amended. This safety data sheet complies with the requirements of UK REACH Regulation.

Derived No Effect Level (DNEL) :

(1330-20-7) workers dermal systemic effects long term exposure 212 mg/kg bw/day ; workers inhalation systemic effects long term exposure 221 mg/m3 ; workers inhalation local effects long term exposure 221 mg/m3 ; workers inhalation systemic effects acute/short term exposure 442 mg/m3); workers inhalation local effects acute/short term exposure 442 mg/m3
(822-06-0) workers inhalation local effects long term exposure 0.035 mg/m3; workers inhalation local effects acute/short term exposure 0.07 mg/m3
(100-41-4) general population oral systemic effects long term exposure 1.6 mg/kg bw/day; general population inhalation systemic effects long term exposure 15 mg/m3; workers inhalation systemic effects long term exposure 77 mg/m3; workers dermal systemic effects long term exposure 180 mg/kg bw/day; workers inhalation local effects acute/short term exposure 293 mg/m3

Derived minimum effect level: (DMEL)
(100-41-4) workers inhalation systemic effects long term exposure 442 mg/m3 ; workers' inhalation systemic effects acute/short term exposure 884 mg/m3 ; workers inhalation local effects long term exposure 442 mg/m3; workers inhalation local effects acute/short term exposure 884 mg/m3

Predicted No Effect Concentration (PNEC) :

(123-86-4) 0.18 mg/L (freshwate); 0.018 mg/L (marine water); 0.36 mg/L (freshwater (intermittent releases); 0.981 mg/kg s (sediment (freshwater1); 0.0981 mg/kg (sediment (marine water)); 35.6 mg/L (sewage treatment); 0.0903 mg/kg (soil)
(1330-20-7) 0.327 mg/L (freshwater); 0.327 mg/L (marine water); 0.327 mg/L (freshwater (intermittent releases)); 12.46 mg/kg (sediment (freshwater)); 12.46 mg/kg (sediment (marine water)); 6.58 mg/L (sewage treatmetn); 2.31 mg/kg (soil))
(822-06-0) 8.42 mg/L PNEC (sewage treatment)

8.2 Exposure controls

Ventilation and engineering measures
: Use only outdoors or in a well-ventilated area. Apply technical measures to comply with the occupational exposure limits. Where reasonably practicable this should be achieved by the use of local exhaust ventilation and good general extraction. In case of insufficient ventilation wear suitable respiratory equipment.

Respiratory protection : When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. The filter class for the respirator must be suitable for the maximum expected contaminant concentration (gas/vapour/aerosol/particulates) that may arise when handling the product. If this concentration is exceeded, self-contained breathing apparatus must be used. Advice should be sought from respiratory protection specialists.

Skin protection : Wear protective gloves. The suitability for a specific workplace should be discussed with the producers of the protective gloves. The selected protective gloves have to satisfy the specifications of EU Directive 89/689/EEC and the standard EN 374 derived from it. Where extensive exposure to product is possible, use resistant coveralls, apron and boots to prevent contact.

Eye / face protection : Wear eye and face protection. Chemical splash goggles are recommended. A full face shield may also be necessary. See also EN 166.

Other protective equipment
: Ensure that eyewash stations and safety showers are close to the workstation location. Other equipment may be required depending on workplace standards.

General hygiene considerations
: Avoid breathing vapours. Avoid contact with skin, eyes and clothing. Wash hands thoroughly after handling. Remove and wash contaminated clothing before re-use. Handle in accordance with good industrial hygiene and safety practice. Contaminated work clothing should not be allowed out of the workplace.

8.3 Environmental exposure controls

: Avoid release to the environment.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Physical state : Clear yellow liquid.
Colour : yellow
Odour : solvent
Odour threshold : No information available.
pH : No information available.
Flash point : 32.8°C
Flashpoint (Method) : closed cup
Lower flammable limit (% by vol.)
: 1% (Xylene)
Upper flammable limit (% by vol.)
: 7% (Xylene)
Auto-ignition temperature
: No information available.
Decomposition temperature
: No information available.
Oxidizing properties : None known.
Explosive properties : Not explosive
Initial boiling point and boiling range
: > 126°C
Melting/Freezing point : No information available.
Relative density : 1.0
Solubility in water : insoluble. May react with water.
Other solubility(ies) : No information available.
Vapour pressure : No information available.
Vapour density : > 1 (Air = 1.0)
Partition coefficient: n-octanol/water
: No information available.
Viscosity : No information available.
Evaporation rate (BuAe = 1)
: No information available.
Particle characteristics : Not applicable.

9.2 Other Information

Volatiles (% by weight) : No information available.
Volatile organic Compounds (VOC's)
: 1060 g/L
Other physical/chemical comments
: No additional information.

SAFETY DATA SHEET

This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006, as amended. This safety data sheet complies with the requirements of UK REACH Regulation.

SECTION 10. STABILITY AND REACTIVITY

10.1 Reactivity : May react with water.

10.2 Chemical stability : Stable under normal conditions.

10.3 Possibility of hazardous reactions

: Reacts slowly with water below 50°C (122°F), releasing heat, large amounts of carbon dioxide and polyureas. Polymerization may occur at elevated temperatures in the presence of: tertiary amines; Alkalies

10.4 Conditions to avoid : Direct sources of heat. Do not use in areas without adequate ventilation. Avoid contact with incompatible materials. Avoid excessive moisture.

10.5 Incompatible materials

: Strong oxidizing agents; Strong acids; Strong bases; Water; Amines; Alcohols; Metal compounds (e.g. Organotins).

10.6 Hazardous decomposition products

: Hexamethylene diamine.
Burning produces obnoxious and toxic fumes. In the event of fire the following can be released: Carbon oxides.; Hydrogen cyanide (hydrocyanic acid); Aldehydes; Nitrogen oxides (NOx).

SECTION 11. TOXICOLOGICAL INFORMATION

11.1 Information on Toxicological effects:

Acute toxicity : This mixture is classified as hazardous in accordance with Regulation (EC) No 1272/2008. Classification:
Acute toxicity - Category 4. Harmful if inhaled.

Skin corrosion/Irritation : This mixture is classified as hazardous in accordance with Regulation (EC) No 1272/2008. Classification:
Skin corrosion/irritation - Category 2. Causes skin irritation.

Serious eye damage/irritation

: According to the classification criteria of the European Union, the product is not considered as being an eye irritant.

Respiratory or skin sensitisation

: This mixture is classified as hazardous in accordance with Regulation (EC) No 1272/2008. Classification:
Respiratory sensitization - Category 1. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause allergic respiratory reaction (sensitization) with asthmatic symptoms such as wheezing and chest tightness.
Skin sensitization - Category 1. May cause an allergic skin reaction.
May cause severe skin sensitization with allergic contact dermatitis symptoms such as swelling, rash and eczema.

Germ cell mutagenicity : Contains no ingredient listed as a mutagen.

Carcinogenicity : Not classifiable as a human carcinogen.

Reproductive toxicity : Contains no ingredient listed as toxic to reproduction.

STOT-single exposure : This mixture is classified as hazardous in accordance with Regulation (EC) No 1272/2008. Classification:
Specific target organ toxicity, single exposure - Category 3. May cause respiratory irritation.

STOT-repeated exposure : According to the classification criteria of the European Union, this product is not expected to cause target organ toxicity through repeated exposures.

Aspiration hazard : According to the classification criteria of the European Union, this product is not considered as being an aspiration hazard to humans.

SAFETY DATA SHEET

This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006, as amended. This safety data sheet complies with the requirements of UK REACH Regulation.

Routes of exposure : Eye contact; Skin contact; Skin Absorption; Inhalation; Ingestion

Effects of acute exposure : Inhalation: Harmful if inhaled. Symptoms may include eye and nose irritation, dry or sore throat, runny nose, shortness of breath and wheezing. Coughing with chest pain or tightness may also occur. Higher concentrations could cause inflammation of the lung tissue (chemical pneumonitis), chemical bronchitis with severe asthma-like wheezing, severe coughing spasms and accumulation of fluid in the lungs (pulmonary edema). Symptoms of pulmonary edema (chest pain, shortness of breath) may be delayed.

Skin contact: Causes skin irritation. Contact may cause redness, swelling and a painful sensation.

Eye contact: May cause mild eye irritation. Symptoms may include stinging and tearing.

Ingestion: Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. Ingestion of larger amounts may cause defects to the central nervous system (e.g. dizziness, headache).

Potential Chronic Health Effects

: Causes brown discolouration of the skin.

11.1.1 Acute Toxicity

Toxicological data : No data is available on the product itself. The calculated ATE values for this mixture are:
ATE oral = >18000 mg/kg
ATE dermal = 120.000mg/kg
ATE inhalation (mists) = 3.1-5.4mg/L/4H
ATE inhalation (vapours) = 20-23mg/L/4H

See below for individual ingredient acute toxicity data.

Chemical name	LC_{50}(4hr) inh, rat	LD_{50} (Oral, rat)	LD_{50} (Rabbit, dermal)
Hexamethylene diisocyanate, oligomers	4.625 mg/L (mist)	> 2000 mg/kg (No mortality)	> 2500 mg/kg (No mortality)
n-Butyl acetate	> 6867 ppm (32.6 mg/L) (vapour) 1.802 mg/L (aerosol)	10 700 mg/kg	> 5000 mg/kg
Xylene	6350 ppm (27.6 mg/L) (vapours)	3253 mg/kg	12 180 mg/kg
Ethylbenzene	4000 ppm (17.4 mg/L) (vapour)	3500 mg/kg	15 380 mg/kg
Hexamethylene diisocyanate	18 ppm (0.124 mg/L) (vapour)	745 mg/kg	600 mg/kg

11.2 Information on other Hazards

: Not applicable

11.2.1 Endocrine disrupting properties :May cause endocrine disruption. 11.2.2 Other hazards Not applicable

SECTION 12. ECOLOGICAL INFORMATION

12.1 Toxicity : No data is available on the product itself. Should not be released into the environment.

See the following tables for individual ingredient ecotoxicity data.

SAFETY DATA SHEET

This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006, as amended. This safety data sheet complies with the requirements of UK REACH Regulation.

Ecotoxicity data:

Ingredients	CAS No	Toxicity to Fish		
		LC50 / 96h	NOEC / 21 day	M Factor
Hexamethylene diisocyanate, oligomers	28182-81-2	≥ 100 mg/L (Zebra fish)	No information available.	None.
n-Butyl acetate	123-86-4	18 mg/L (Fathead minnow)	No information available.	None.
Xylene	1330-20-7	8.2 mg/L (Rainbow trout)	No information available.	None.
Ethylbenzene	100-41-4	4.2 mg/L (Rainbow trout)	1.13 mg/L (30 days) (QSAR)	None.
Hexamethylene diisocyanate	822-06-0	> 82.8 mg/L (Zebra fish)	No information available.	None.

Ingredients	CAS No	Toxicity to Daphnia		
		EC50 / 48h	NOEC / 21 day	M Factor
Hexamethylene diisocyanate, oligomers	28182-81-2	127 mg/L (Daphnia magna)	No information available.	None.
n-Butyl acetate	123-86-4	44 mg/L (Daphnia magna)	23 mg/L (Read-across)	None.
Xylene	1330-20-7	3.2 - 9.56 mg/L (Daphnia magna)	No information available.	None.
Ethylbenzene	100-41-4	1.81 mg/L (Daphnia magna)	Not available.	None.
Hexamethylene diisocyanate	822-06-0	> 89.1 mg/L (Daphnia magna)	No information available.	None.

Ingredients	CAS No	Toxicity to Algae		
		EC50 / 96h or 72h	NOEC / 96h or 72h	M Factor
Hexamethylene diisocyanate, oligomers	28182-81-2	> 1000 mg/L/72hr (Green algae)	No information available.	None.
n-Butyl acetate	123-86-4	675 mg/L/72hr (Green algae)	200 mg/L/72hr	None.
Xylene	1330-20-7	3.2 - 4.9 mg/L/72hr (Green algae)	No information available.	None.
Ethylbenzene	100-41-4	3.6 mg/L/96hr (Green algae)	3.4 mg/L/96hr	None.
Hexamethylene diisocyanate	822-06-0	> 77.4 mg/L/72hr (Green algae)	11.7 mg/L/72hr	None.

12.2 Persistence and degradability

: The product itself has not been tested. Not expected to be rapidly biodegradable. Will react with water to produce inert and non-biodegradable solids.
The following ingredients are considered to be readily biodegradable: Xylene; n-Butyl acetate.

12.3 Bioaccumulation potential

: The product itself has not been tested. See the following data for ingredient information.

Components	Partition coefficient n-octanol/water (log Kow)	Bioconcentration factor (BCF)
Hexamethylene diisocyanate, oligomers (CAS 28182-81-2)	6.11 (calculated)	367.7
n-Butyl acetate (CAS 123-86-4)	2.3	15.3
Xylene (CAS 1330-20-7)	3.12 - 3.2	50 - 58
Ethylbenzene (CAS 100-41-4)	3.15	1.1 - 1.5
Hexamethylene diisocyanate (CAS 822-06-0)	3 (calculated)	58 (calculated)

12.4 Mobility in soil : The product itself has not been tested.

12.5 Results of PBT and vPvB assessment

: This mixture contains no substance considered to be persistent, bioaccumulating nor toxic (PBT).

12.6 Endocrine disrupting properties

: None known or reported by the manufacturer.

12.7 Other Adverse Environmental effects

: No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

12.8 Additional information : None known or reported by the manufacturer.

SECTION 13. DISPOSAL CONSIDERATIONS

13.1 Waste Treatment Methods:

Handling for Disposal : Handle in accordance with good industrial hygiene and safety practice. Refer to protective measures listed in sections 7 and 8. This material and its container must be disposed of in a safe way.

Methods of Disposal : Empty containers may contain hazardous residues. Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken for local recycling or waste disposal.
Dispose of in accordance with the European Directives on waste and hazardous waste. Waste must be classified and labelled prior to recycling or disposal. According to the European Waste Catalogue, Waste Codes are not product specific, but application specific. Waste codes should be assigned by the user based on the application for which the product was used.

SECTION 14. TRANSPORTATION INFORMATION

SAFETY DATA SHEET

This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006, as amended. This safety data sheet complies with the requirements of UK REACH Regulation.

Regulatory Information	**14.1 UN Number**	**14.2 UN proper shipping name**	**14.3 Transport hazard class(es)**	**14.4 Packing Group**	*Label*
ADR/RID	UN1866	RESIN SOLUTION	3	III	
EU ADR/RID Classification Code	F1 - Flammable liquids having a flash-point of or below 60 °C				
EU ADR / RID Hazard Identification Number	30 - flammable liquid (flash-point between 23 °C and 60 °C, inclusive) or flammable liquid or solid in the molten state with a flash-point above 60 °C, heated to a temperature equal to or above its flash-point, or self-heating liquid.				
ADR/RID Additional information	May be shipped as Limited Quantity when transported in containers no larger than 5.0 Litres; in packages not exceeding 30 kg gross mass. Tunnel Code: 3(D/E)				
ICAO/IATA	UN1866	Resin solution	3	III	
ICAO/IATA Additional information	Refer to the appropriate Packing Instruction, prior to shipping this material. Review all State and Operator Variations, prior to shipping this material.				
IMDG	UN1866	RESIN SOLUTION	3	III	
IMDG Additional information	May be shipped as Limited Quantity when transported in containers no larger than 5.0 Litres; in packages not exceeding 30 kg gross mass. EmS No. F-E-S-E				

14.5 Environmental hazards : This product does not meet the criteria for an environmentally hazardous mixture, according to the IMDG Code. See Section 12 for more environmental information.

14.6 Special precautions for user

: Appropriate advice on safety must accompany the package. Keep away from heat, sparks and open flame - No smoking. Keep containers dry and tightly closed to avoid moisture absorption and contamination.

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

: Not applicable.

SECTION 15. REGULATORY INFORMATION

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

SAFETY DATA SHEET

This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006, as amended. This safety data sheet complies with the requirements of UK REACH Regulation.

: Classification according to Regulation (EC) No. 1272/2008 on the classification of hazardous mixtures.

Authorisations
Regulation (EC) No. 1907/2006, REACH Annex XIV Substances subject to authorisation, as amended:
None of the components are specifically listed.
Restrictions on use
Regulation (EC) No. 1907/2006, REACH Annex XVII Substances subject to restriction on marketing and use, as amended Entry 74
“As from 24 August 2023 adequate training is required before industrial or professional use” :

Directive 2012/18/EU (Seveso III) on the control of major-accident hazards involving dangerous substances:
H2 ACUTE TOXIC Category 3 inhalation exposure route
P5c FLAMMABLE LIQUIDS

Directive 98/24/EC on the protection of the health and safety of workers from risks related to chemical agents at work:
Hexamethylene diisocyanate, oligomers (CAS # 28182-81-2)
n-Butyl acetate (CAS # 123-86-4)
Xylene (CAS # 1330-20-7)
Hexamethylene diisocyanate (CAS # 822-06-0)
Ethylbenzene Ethylbenzene

Directive 94/33/EC on the protection of young people at work:
Hexamethylene diisocyanate, oligomers (CAS # 28182-81-2)
Hexamethylene diisocyanate (CAS # 822-06-0)
Ethylbenzene (CAS # 100-41-4)
This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006, as amended [including Regulation (EU) 2020/878].

Follow national regulation for work with chemical agents.

German legislation on water endangering substances AWSV - Water contaminating class (Germany): 2 (self classified)

15.2 Chemical safety assessment

: A chemical safety assessment has not been carried out by the Manufacturer of this product.

Parker Hannifin Ltd.
Engineered Materials Group
Chomerics Division Europe
Unit 6 Century Point Halifax Road
High Wycombe Bucks, HP12 3SL
United Kingdom
Telephone: 044 (0) 1494 455 400

SAFETY DATA SHEET

This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006, as amended. This safety data sheet complies with the requirements of UK REACH Regulation.

SECTION 16. OTHER INFORMATION

Legend : ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE: Acute Toxicity Estimate
CAS: Chemical Abstract Services
CLP: Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures
EC: European Community
EC50: Effective Concentration 50%
EEC: European Economic Community
EN: European Standard
EU: European Union
IATA: International Air Transport Association
IMDG: International Maritime Dangerous Goods
LC: Lethal Concentration
LD: Lethal Dose
NOEC: No observable effect concentration
OEL: National occupational exposure limits
PEL: Permissible exposure limit
RID: Regulations concerning the International Carriage of Dangerous Goods by Rail
STEL: Short Term Exposure Limit
TWA: Time Weighted Average
WEL: Workplace Exposure Limit

Information Source : 1. Material Safety Data Sheet from manufacturer.
2. Canadian Centre for Occupational Health and Safety, CCInfoWeb Databases
3. European Chemicals Agency, Classification Legislation
4. OECD - The Global Portal to Information on Chemical Substances

Preparation Date (dd/mm/yyyy) : 21/05/2021

Reviewed Date SDS (dd/mm/yyyy) : 12/03/2026

Revision No. : 7

Revision Information : 1. IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND OF THE COMPANY / UNDERTAKING 2. HAZARDS IDENTIFICATION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION 15. REGULATORY INFORMATION

Regulation and Procedure :

SAFETY DATA SHEET

This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006, as amended. This safety data sheet complies with the requirements of UK REACH Regulation.

Flammable.; Flash point
Acute toxicity ; Acute toxicity estimate
Skin irritation; Expert judgement
Skin sensitization; Expert judgement
Respiratory sensitization; Expert judgement
Specific target organ toxicity, single exposure; Expert judgement

H-phrases (full-text)

H226 - Flammable liquid and vapour.
H302 - Harmful if swallowed.
H312 - Harmful in contact with skin.
H315 - Causes skin irritation.
H317 - May cause an allergic skin reaction.
H319 - Causes serious eye irritation.
H330 - Fatal if inhaled.
H331 - Toxic if inhaled.
H332 - Harmful if inhaled.
H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335 - May cause respiratory irritation.
H336 - May cause drowsiness or dizziness.

EUH066 - Repeated exposure may cause skin dryness or cracking.
EUH380: May cause endocrine disruption in humans

Other special considerations for handling

: Provide adequate information, instruction and training for operators.

Prepared for:

Parker Hannifin Corp.
77 Dragon Court
Woburn, MA, USA 01888
Telephone: 001-781-935-4850
http://www.parker.com
Direct all enquiries to Parker Hannifin.

Prepared by:

ICC The Compliance Center Inc.
http://www.thecompliancecenter.com

DISCLAIMER

This Safety Data Sheet was prepared by ICC The Compliance Center Inc. using information provided by Parker Hannifin Corporation and CCOHS' Web Information Service. The information in the Safety Data Sheet is offered for your consideration and guidance when exposed to this product. ICC The Compliance Center Inc and Parker Hannifin Corporation expressly disclaim all expressed or implied warranties and assume no responsibilities for the accuracy or completeness of the data contained herein. The data in this SDS does not apply to use with any other product or in any other process.

This Safety Data Sheet may not be changed, or altered in any way without the expressed knowledge and permission of ICC The Compliance Center Inc. and Parker Hannifin Corporation.

END OF DOCUMENT