



SAFETY DATA SHEET

BETZ MPH5000

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

1.1. Product identifier

Trade name or designation of the mixture	BETZ MPH5000
Date of first issue	04/08/2006
Version number	7.2
Revision date	09/12/2021
Supersedes date	17/08/2020

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

Identified uses	Membrane cleaner
Uses advised against	None known.

1.3. Details of the supplier of the safety data sheet

JV Process and Water Chemicals LLC
Street V. Kadirov 10, city Chirchik, Region Tashkent
Republic of Uzbekistan, 111702
tel : +99871 209 10 40
e-mail : info@pwch.uz
www.pwch.uz

1.4. Emergency telephone number

Multilingual emergency number (24/7)

Street V. Kadirov 10, city Chirchik, Region Tashkent
Republic of Uzbekistan, 111702
+99871 209 10 40

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 as amended

Physical hazards

Corrosive to metals	Category 1	H290 - May be corrosive to metals.
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Health hazards

Skin corrosion/irritation	Category 1	H314 - Causes severe skin burns and eye damage.
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Serious eye damage/eye irritation	Category 1	H318 - Causes serious eye damage.
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2.2. Label elements



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Label according to Regulation (EC) No. 1272/2008 as amended

Hazard pictograms



Signal word

Danger

Hazard statements

H290 May be corrosive to metals.
H314 Causes severe skin burns and eye damage.

Precautionary statements

Prevention

P280 Wear protective gloves/protective clothing/eye protection/face protection.

Response

P301 + P330 + P331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 Immediately call a POISON CENTRE/doctor.

Storage

P406 Store in a corrosion resistant container with a resistant inner liner.

Disposal

Not available.

Supplemental label information None.

2.3. Other hazards The classification as corrosive is due to the extreme pH.

SECTION 3: Composition/information on ingredients

Mixtures

Chemical description Solution of organic complexant (citric acid)

Chemical name	%	CAS-No. / EC No.	REACH Registration No.	Index No.	Notes
Citric acid	50 - < 60	77-92-9 201-069-1	01-2119457026-42	-	

Classification: Eye Irrit. 2;H319

The classification of the above substance(s) is given, including the hazard class, category code and hazard statements which are assigned in accordance with their physicochemical, health and environmental hazards. Please refer to section 16 where the full text of each relevant H-statement is listed.

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention immediately.

Skin contact Take off immediately all contaminated clothing. Wash off immediately with plenty of water for at least 15 minutes. Get medical attention immediately.

Eye contact Rinse immediately with plenty of water for at least 15 minutes. Get medical attention immediately.

Ingestion Rinse mouth. Do not give anything to eat or drink. Do not induce vomiting. Call a physician or poison control centre immediately.

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



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4.3. Indication of any immediate medical attention and special treatment needed Not available.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media Dry chemical, CO₂, water spray or regular foam.

Unsuitable extinguishing media None.

5.2. Special hazards arising from the substance or mixture Oxides of carbon evolved in fire.

5.3. Advice for firefighters

Special protective equipment for firefighters Self contained breathing apparatus. (CEN : EN 137)
 Protective clothing (CEN : EN 469)
 Protective gloves (CEN : EN 659)
 Helmet (CEN : EN 443)

Special fire fighting procedures Use standard firefighting procedures and consider the hazards of other involved materials. Prevent spillage and fire-fighting water from entering in public sewers or the immediate environment.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel Wear protective clothing, gloves and safety goggles.

For emergency responders Use personal protection recommended in Section 8 of the SDS.

6.2. Environmental precautions Prevent from entering sewers or the immediate environment. Accidental release of large quantities into the aquatic environment may harm aquatic organisms.

6.3. Methods and material for containment and cleaning up Absorb onto inert material and dispose of according to Hazardous Waste Regulations. Remove small spills with plenty of water.

6.4. Reference to other sections Please refer also to section no. 8 'Exposure controls' for further information.

SECTION 7: Handling and storage

7.1. Precautions for safe handling Observe good industrial hygiene practices. Acidic. Do not mix with alkaline material.

7.2. Conditions for safe storage, including any incompatibilities Keep containers tightly closed in a dry, cool and well-ventilated place. Store in corrosive resistant container with a resistant inner liner.

7.3. Specific end use(s) Only for professional and industrial users

Shelf life 720 Days

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits No exposure limits noted for ingredient(s).

Biological limit values No biological exposure limits noted for the ingredient(s).

Recommended monitoring procedures Not available.

Derived no effect levels (DNELs) Not available.

Predicted no effect concentrations (PNECs)

Components	Value	Assessment factor	Notes
Citric acid (CAS 77-92-9)			
Freshwater	0,44 mg/l	1000	
Marine water	0,044 mg/l	10000	
Sediment (freshwater)	34,6 mg/kg	1	



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Sediment (marine water)	3,46 mg/kg	1
Soil	33,1 mg/kg	
STP	1000 mg/l	10

8.2. Exposure controls

Appropriate engineering controls Adequate ventilation to maintain air contaminants below exposure limits.
 Eye wash facilities and emergency shower must be available when handling this product.

Individual protection measures, such as personal protective equipment

- Eye/face protection** Splash proof chemical goggles.
 Face shield.
 CEN : EN 166
- Skin protection**
- **Hand protection** Gauntlet type nitrile gloves (Protection against unintentional short-term contact)
 Coating thickness: 0.5 mm
 Penetration time: > 480 min
 CEN : EN 374-1/2/3/4; EN 420
- **Other** Chemical resistant apron.
 CEN : EN ISO 13688; EN ISO 6529; EN 14605
- Respiratory protection** In case of insufficient ventilation, use a breathing mask with filter type: P2
 CEN : EN 140; EN 143; EN 149
- Thermal hazards** Not available.
- Environmental exposure controls** Prevent from entering in public sewers or the immediate environment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance

- Colour** Colourless
- Physical state** Liquid

Odour Mild

Odour threshold Not available.

pH (concentrated product) < 1 Neat

pH in aqueous solution 2,4 (5% Solution)

Melting point/freezing point -7 °C

Initial boiling point and boiling range 107 °C

Flash point > 101 °C P-M(CC)

Evaporation rate Slower than Ether

Flammability (solid, gas) Not applicable.

Upper/lower flammability or explosive limits

Flammability limit - lower (%) Not available.

Flammability limit - upper (%) Not available.

Vapour pressure 18 mmHg

Vapour pressure temp. 21 °C

Vapour density < 1

Relative density 1,24

Relative density temperature 21 °C

Solubility

Solubility (water) 100 %

Partition coefficient (n-octanol/water) Not available.



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Auto-ignition temperature	Not applicable.
Decomposition temperature	Not available.
Viscosity	Not applicable.
Explosive properties	Not available.
Oxidising properties	Not available.
9.2. Other information	
Pour point	-4 °C
Shelf life	720 Days
VOC	0 % Calculated

SECTION 10: Stability and reactivity

10.1. Reactivity	Not available.
10.2. Chemical stability	Material is stable under normal conditions.
10.3. Possibility of hazardous reactions	Not applicable.
10.4. Conditions to avoid	Protect from freezing.
10.5. Incompatible materials	Avoid contact with strong oxidisers. Avoid contact with strong bases.
10.6. Hazardous decomposition products	Oxides of carbon evolved in fire.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Product	Test Results
BETZ MPH5000 (Mixture)	Acute Dermal LD50 Rabbit: > 2000 mg/kg (Calculated according to GHS additivity formula) Acute Inhalation LC50 Rat: > 20 mg/l 4 hour (Calculated according to GHS additivity formula) Acute Oral LD50 Rat: > 5000 mg/kg (Calculated according to GHS additivity formula)
Components	Test Results
Citric acid (77-92-9)	Acute Dermal LD50 Rabbit: > 2000 mg/kg Acute Oral LD50 Rat: 5400 mg/kg

Acute toxicity	Based on available data, the classification criteria are not met.
Skin corrosion/irritation	Causes severe skin burns and eye damage.
Serious eye damage/irritation	Causes serious eye damage.
Respiratory or skin sensitisation	Based on available data, the classification criteria are not met.
Specific target organ toxicity - repeated exposure	Based on available data, the classification criteria are not met.
Specific target organ toxicity - single exposure	Based on available data, the classification criteria are not met.
Carcinogenicity	Based on available data, the classification criteria are not met.
Germ cell mutagenicity	Based on available data, the classification criteria are not met.
Reproductive toxicity	Based on available data, the classification criteria are not met.

Information on likely routes of exposure

Ingestion	Causes digestive tract burns.
Inhalation	May cause irritation to the respiratory system.
Skin contact	Causes severe skin burns.



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Eye contact	Causes serious eye damage.
Symptoms	Not available.
Aspiration hazard	Based on available data, the classification criteria are not met.
Mixture versus substance information	None known.
Other information	Not available.

SECTION 12: Ecological information

12.1. Toxicity No data available

Product	Species	Test Results
BETZ MPH5000 (CAS Mixture)		
Aquatic		
Crustacea	LC50	Ceriodaphnia 1510 mg/l, Static Renewal Bioassay, 48 hour, (pH adjusted)
		Daphnia magna 2120 mg/l, Static Renewal Bioassay, 48 hour, (pH adjusted)
	NOEL	Ceriodaphnia 720 mg/l, Static Renewal Bioassay, 48 hour, (pH adjusted)
		Daphnia magna 1160 mg/l, Static Renewal Bioassay, 48 hour, (pH adjusted)
Fish	LC50	Fathead minnow 5940 mg/l, Static Renewal Bioassay, 96 hour, (pH adjusted)
	NOEL	Fathead minnow 2500 mg/l, Static Renewal Bioassay, 96 hour, (pH adjusted)

12.2. Persistence and degradability No data available

12.3. Bioaccumulative potential Not available.

Partition coefficient n-octanol/water (log Kow)
 Citric acid -1,64

Bioconcentration factor (BCF)
 Citric acid 3

12.4. Mobility in soil Not available.

12.5. Results of PBT and vPvB assessment Not a PBT or vPvB substance or mixture.

12.6. Other adverse effects Not available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Contaminated packaging According to Hazardous Waste Regulations.
 EWC (European Waste Code) recommendation : 15 01 10
 15 Waste packaging; absorbents, wiping cloths, filter materials and protective clothing not otherwise specified.
 15 01 Packaging (including separately collected municipal packaging waste).
 15 01 10 Packaging containing residues of or contaminated by dangerous substances.
 Depending on the origin and state of the waste, other EWC numbers may be applicable too.

Disposal methods/information According to Hazardous Waste Regulations.
 EWC (European Waste Code) recommendation : 16 03 05
 16 Wastes not otherwise specified in the list.
 16 03 Off-specification batches and unused products.
 16 03 05 Organic wastes containing dangerous substances.
 Depending on the origin and state of the waste, other EWC numbers may be applicable too.



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SECTION 14: Transport information

ADR

- 14.1. UN number UN3265
- 14.2. UN proper shipping name Corrosive liquid, acidic, organic, n.o.s. (Citric acid, Mixture)
- 14.3. Transport hazard class(es)
 - Class 8
 - Subsidiary risk -
 - Tunnel restriction code (E)
- 14.4. Packing group II
- 14.5. Environmental hazards No.
- 14.6. Special precautions for user Not available.

RID

- 14.1. UN number UN3265
- 14.2. UN proper shipping name Corrosive liquid, acidic, organic, n.o.s. (Citric acid, Mixture)
- 14.3. Transport hazard class(es)
 - Class 8
 - Subsidiary risk -
- 14.4. Packing group II
- 14.5. Environmental hazards No.
- 14.6. Special precautions for user Not available.

ADN

- 14.1. UN number UN3265
- 14.2. UN proper shipping name Corrosive liquid, acidic, organic, n.o.s. (Citric acid, Mixture)
- 14.3. Transport hazard class(es)
 - Class 8
 - Subsidiary risk -
- 14.4. Packing group II
- 14.5. Environmental hazards No.
- 14.6. Special precautions for user Not available.

IATA

- 14.1. UN number UN3265
- 14.2. UN proper shipping name Corrosive liquid, acidic, organic, n.o.s. (Citric acid, Mixture)
- 14.3. Transport hazard class(es)
 - Class 8
 - Subsidiary risk -
- 14.4. Packing group II
- 14.5. Environmental hazards No.
- ERG Code Not available.
- 14.6. Special precautions for user Not available.

IMDG

- 14.1. UN number UN3265
- 14.2. UN proper shipping name Corrosive liquid, acidic, organic, n.o.s. (Citric acid, Mixture)
- 14.3. Transport hazard class(es)
 - Class 8
 - Subsidiary risk -
- 14.4. Packing group II
- 14.5. Environmental hazards
 - Marine pollutant No.



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EmS

F-A, S-B

14.6. Special precautions for user

Not available.

14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code

This substance/mixture is not intended to be transported in bulk.

ADN; ADR; IATA; IMDG; RID



SECTION 15: Regulatory information

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

EU regulations

Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex I and II, as amended

Not listed.

Regulation (EC) No. 850/2004 On persistent organic pollutants, Annex I as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 1 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 2 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 3 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex V as amended

Not listed.

Regulation (EC) No. 166/2006 Annex II Pollutant Release and Transfer Registry, as amended

Not listed.

Regulation (EC) No. 1907/2006, REACH Article 59(10) Candidate List as currently published by ECHA

Not listed.

Authorisations

Regulation (EC) No. 1907/2006, REACH Annex XIV Substances subject to authorization, as amended

Not listed.

Restrictions on use

Regulation (EC) No. 1907/2006, REACH Annex XVII Substances subject to restriction on marketing and use as amended

Not listed.

Directive 2004/37/EC: on the protection of workers from the risks related to exposure to carcinogens and mutagens at work, as amended.

Not listed.

Other EU regulations

Directive 2012/18/EU on major accident hazards involving dangerous substances, as amended

Not listed.

National regulations

Not available.

15.2. Chemical safety assessment

Not available.



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NSF Registered and/or meets
USDA (according to 1998
guidelines): Registration No. – 161577
Category Code(s): G5 Cooling and retort water treatment products

Inventory status

Country(s) or region	Inventory name	On inventory (yes/no)*
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

SECTION 16: Other information

List of abbreviations

EC-No: European Commission Number
VME: Valeur moyenne d'exposition (Time weighted average)
COD: Chemical Oxygen Demand
IATA: International Air Transport Association
CAS: Chemical Abstract Service.
CLP: Classification, Labeling and Packaging REGULATION (EC) No 1272/2008 on classification, labeling and packaging of substances and mixtures.
CEN: European Committee for Standardization (Comité Européen de Normalisation).
TWA: Time Weighted Average.
STEL: Short-term Exposure Limit.
LD50: Lethal Dose 50%.
LC50: Lethal Concentration 50%.
EC50: Effective Concentration 50%.
NOEL: No observed effect level.
BOD: Biochemical oxygen demand.
TOC: Total Organic Carbon.
ADR: European agreement concerning the international carriage of dangerous goods by road (Accord européen relatif transport des marchandises dangereuses par route).
ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures).
IMDG Code: International Maritime Dangerous Goods Code.
RID: Regulations concerning the international carriage of dangerous goods by rail (Règlement International concernant le transport de marchandises dangereuses par chemin de fer).

References

Information on evaluation method leading to the classification of mixture

The physical, health and environmental hazards of this mixture are assessed by applying the classification criteria for each hazard class or differentiation in Parts 2 to 5 of Annex I to Regulation (EC) No 1272/2008 (CLP).

Full text of any H-statements not written out in full under Sections 2 to 15

H319 Causes serious eye irritation.

Revision information

SECTION 3: Composition/information on ingredients: Composition comments
SECTION 7: Handling and storage: 7,1. Precautions for safe handling
SECTION 8: Exposure controls/personal protection: - Hand protection
Physical & Chemical Properties: Multiple Properties
SECTION 11: Toxicological information: Acute toxicity
SECTION 11: Toxicological information: Carcinogenicity
SECTION 11: Toxicological information: Skin corrosion/irritation
SECTION 11: Toxicological information: Germ cell mutagenicity
SECTION 11: Toxicological information: Reproductive toxicity
SECTION 11: Toxicological information: Respiratory or skin sensitisation
SECTION 11: Toxicological information: Specific target organ toxicity - repeated exposure
SECTION 11: Toxicological information: Specific target organ toxicity - single exposure
SECTION 16: Other information: Further information
GHS: Classification

Training information

Provide training on safe handling while considering the type of application and exposure scenarios.



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Based on EC Directive / Regulations	(EC) No 1907/2006 (REACH) (EU) 2015/830 (EC) No 1272/2008 (EU) No 1357/2014
Further information	Correction in Section: 8,9,11