

# PHMB P20 SP

Previous version : August 8, 2012

The updated parts are identified by an asterisk (\*)

Meaning of acronyms and references used in this MSDS are given in part 16

## **SECTION 1: Identification of the mixture and of the company**

### 1.1. Product identifier

Trade name: **PHMB P20 SP**

PHMB = PolyHexaMethylene Biguanide

Kind of product: preparation (mixture).

### 1.2. Relevant identified uses of the mixture and uses advised against

20%-PHMB solution is a cationic biocide to be used as a biocide product for general water treatment (disinfection) and more particularly for swimming pool water treatment.

### 1.3. Details of the supplier of the safety data sheet

Manufacturer and distributor: **Laboratoire Paréva**

Address: Z.I. du bois de LEUZE – 25, avenue Marie Curie – 13310 – Saint-Martin de CRAU – FRANCE

Telephone: +33 ~ (0)490.47.95.75

Fax: +33 ~ (0)490.47.95.00

E-mail (MSDS) : [d.cros@pareva.fr](mailto:d.cros@pareva.fr)

### 1.4. Emergency telephone number

Country	Organisation	Phone N°	availability	Kind of information
France	manufacturer	+33 ~ (0)490.47.95.19	office hours	For technical questions
France	ORFILA (INRS)	+33 ~ (0)145.42.59.59	24h/24 – 7d/7	Assistance for first aid

## **SECTION 2: Hazards identification**

### 2.1. Classification of the mixture

According to directive 1999/45/EC :

- ⇒ Xi R41 Risk of serious damage to eyes
- ⇒ Xi R38 Irritating to skin (\*)
- ⇒ Xn R20 Harmful by inhalation
- ⇒ N R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

### Most important adverse effects:

- Most important adverse physico-chemical effect(s) : none
- Most important adverse human health effect(s) : very irritant to eyes
- Most important adverse environmental effect(s) : very toxic to aquatic organisms

2.2. Labelling of the mixture



Xn - Harmful



N – Dangerous for the environment

R-Phrases

- 20 Harmful by inhalation
- 38 Irritating to skin (\*)
- 41 Risk of serious damage to eyes
- 50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment  
(to be confirmed: studies in progress)

S-Phrases

- 2 Keep out of the reach of children
- 24/25 Avoid contact with skin and eyes
- 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice
- 29 Do not empty into drains
- 37/39 Wear suitable gloves and eye/face protection
- 46 If swallowed, seek medical advice immediately and show this container or label

2.3. Other hazards

This mixture is not a PBT, nor a vPvB (to be confirmed: studies in progress)

**SECTION 3: Composition/information on ingredients**

3.1. Substances

Chemical identity of the main constituent: PHMB

CAS registry number: 32289-58-0 (previously: 91403-50-8)

REACH registry number: not applicable (biocidal substance)

CAS index name: Poly(iminoimidocarbonyliminoimidocarbonylimino hexamethylene, hydrochloride)

Chemical identity of the secondary constituent: Hydrogen Chloride

CAS registry number: 7647-01-0

3.2. Mixture composition

Substances [EC numbers]	CAS numbers	Rate	Labelling of the pure substance (see in part 16 the meaning of the R-phrases)
Water [231-791-2]	7732-18-5	79 - 81%	-
PHMB [none, Polymer]	32289-58-0	19 - 21%	Xi,R41 ; Xi,R43 ; Xn,R22, Xn,R20 ; N,R50/53 EyeDamage1,H318 ; SkinSens1,H317 ; AcuteTox4,H302 ; AquaticAcute1,H400 ; AquaticChronic1,H410
Hydrogen Chloride [231-595-7]	7647-01-0	0.1 - 0.3%	T,R23 ; C,R34 ; Xi,R37 Skin corrosive 1B, H314 ; STOT SE 3 , H335

Full text of the R- and S-Phrases mentioned in this section: see section 16.

#### **SECTION 4: First aid measures**

##### 4.1. Description of first aid measures

EYE CONTACT	Wash immediately with plenty of water with eye(s) open during at least 15 minutes. Seek for medical advice. Delayed irritation can occur 5 to 15 minutes after exposure in the case of insufficient wash.
SKIN CONTACT	Take off clothing and shoes that may be contaminated. Wash skin immediately with plenty of clear during water at least 15 minutes. Consult a physician if irritation persists.
INGESTION	Rinse mouth (if victim is conscious) and drink 250-500 ml a neutral liquid (water or milk). Do not induce vomiting. Call a physician or Poison Control Centre for medical advice.
INHALATION	Bring out the victim to the fresh air. Ask the victim to wash throat with drinking water.

In case of a large body surface exposition, remove shoes then the victim must be showered with warm water before removing any soiled clothes.

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

EYE CONTACT	Severe eye irritation(irritation can be delayed for very small quantities)
SKIN CONTACT	Slight irritation can be felt after a delay of 5 to 15 minutes
INGESTION	Unknown symptoms (the product is very bitter, which makes ingestion unlikely)
INHALATION	Causes immediate respiratory irritation and sometime coughing and/or choking

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

No data.

#### **SECTION 5: Fire-fighting measures**

As the product is not flammable nor emits flammable vapours, this section of the safety data sheet describes the requirements for fighting a fire arising in its vicinity.

##### 5.1. Extinguishing media

Suitable extinguishing media: all extinguishing media are appropriate

Unsuitable extinguishing media: none.

##### 5.2. Special hazards arising from the substance or mixture

None: PHMB is neither flammable nor explosive.

In a fire, PHMB may produce CO<sub>2</sub>, NO<sub>x</sub> and HCl fumes in the smokes.

Indeed, PHMB (main active ingredient) bring to this preparation organic carbon rate of 8 to 9%, organic nitrogen rate of 6 to 7% and ionic chloride rate of around 3%.

Attention: PHMB is an active disinfectant. Ensure that the fire fighting water (containing PHMB) do not reach sewage system (waste water domestic network) nor the environment (rain water network).

##### 5.3. Advice for fire-fighters

Usual equipment for fighting against chemicals products: boots, gloves, eye and face protection (breathing apparatus if indoor). No other specific equipment.

## **SECTION 6: Accidental release measures**

### 6.1. Personal precautions, protective equipment and emergency procedures

- (a) Suitable protective equipment: working clothes, goggle (or face protection) and gloves
- (b) Avoid breathing any aerosol (if any: use an appropriate respiratory protection)
- (c) Emergency procedures: organise the evacuation of the danger area or to consult an expert.

### 6.2. Environmental precautions

- Do not scatter the material in the environment.
- Do not flush into sewers or surface water (storm water ditches).
- If the product contaminates rivers and lakes or drains inform respective local authorities.

### 6.3. Methods and material for containment and cleaning up

#### 6.3.1. Containment of a spill

- Contain the spill on the most restricted area as possible, by using neutral absorbent materials (sand,...).
- These materials will be especially treated afterward.

#### 6.3.2. Appropriate clean-up procedures

- Remove the maximum volume as possible (pump).
- Absorb the remaining product with a neutral absorbent materials (earth, sand, diatomaceous,...).
- Transfer the spoiled absorbent in plastic containers (full opening drums, ...) with a shovel for disposal according to current regulations. The waste water and spoiled absorbent must be disposed of as chemical pollutant, in accordance with local regulation (see section 13).
- Wash the contaminated site with plenty of water (get the first rinse water for their disposal according to regulations).

#### ATTENTION:

- Washing phases should not be performed with systems under pressure (to avoid aerosol formation).
- Product is slippery when spilled, and can stay sticky on the places not enough washed.
- Containers (contaminated adsorbent products, polluted waters) must be in "chemistry" quality plastics (PE, PP, PVC ...). Avoid metals, except stainless steels

#### 6.3.3. Other information

None.

### 6.4. Reference to other sections

- Adapted equipment: see section 8.
- Wastes disposal: see section 13.

## **SECTION 7: Handling and storage**

### 7.1. Precautions for safe handling

- Keep the product in its original container, properly sealed.
- Do not mix with other chemicals.
- Large quantities should be handled in a retention area to avoid spills to the environment.
- Do not use high pressure systems to transfer the substance to an open container to prevent accidental aerosol generation.
- Avoid splashing and misting or spray generation

- Keep away from food, drink and animal feeding stuffs.
- Do not eat, drink or smoke in working area.
- Avoid contact with eyes and skin.
- Wash hands after handling
- Remove all contaminated clothing before entering the premises for domestic use (kitchen, rest room).

### 7.2. Conditions for safe storage, including any incompatibilities

- Storage temperature:
  - Maintain at  $T > 6^{\circ}\text{C}$  (~42F) to avoid precipitation (white jellified solid in the bottom of the containers). Becomes limpid again and keeps its activity after some time in a warm place.
  - Keep away from incompatible products and food.
- Materials
  - Recommended: High Density PolyEthylene (HDPE), PolyPropylene (PP), PVC, Stainless Steels.
  - Not suitable: metallic materials (Cu, Fe, Zn, ordinary steels,...), and some kind of rubbers.

### 7.3. Specific end use(s)

This product is intended to be used as a disinfectant in recirculating water systems.

## **SECTION 8: Exposure controls/personal protection**

### 8.1. Control parameters

8.1.1. National limit values: none.

8.1.2. Information on currently recommended monitoring procedures (at least for the most relevant substances): none.

8.1.3. List of the applicable occupational exposure limit values if air contaminants are formed when using the substance or mixture as intended: none.

8.1.4. DNEL / PNEC: no data.

### 8.2. Exposure controls

The information required in the present subsection shall be provided, unless an exposure scenario containing that information is attached to the safety data sheet.

8.2.1. Appropriate engineering controls:

Avoid splashing and spraying the product.

8.2.2. Personal protective equipment:

(a) Eye/face protection, (b) Skin protection and (c) Respiratory protection => see section 7.

(d) Thermal hazards: not concerned.

8.2.3. Environmental exposure controls

See section 6.2.

**SECTION 9: Physical and chemical properties**9.1. Information on basic physical and chemical properties

Aspect	Blue, clear to slightly opalescent liquid
Odour	Lavender / Lavandin.
Odour threshold	~ 5% (expressed in product as supplied)
pH à 20°C (68F)	4,0 - 5,0
Melting point	n.a. (after water evaporation, the remaining solid decomposes at 200-230°C (392-446 F))
Freezing point	n.a. : active ingredient precipitate at temperatures <6°C (~42F)
Boiling point	102 - 105°C (215 -221F)
Flash point	n.a. (this preparation does not emit flammables vapours)
Evaporation rate	No data
Flammability	Not flammable preparation
Ignition / explosion Limits	n.a.
Vapour Pressure at 20°C (68F)	40 HPa
Vapour Density	n.a.
Mass density at 20°C (68F)	1,039-1,046 kg/L
Solubility	<ul style="list-style-type: none"> <li>- Soluble in water in any proportions</li> <li>- Soluble in aliphatic polar alcohols and glycol</li> <li>- Not soluble in les hydrocarbons</li> <li>- methanol : 205.6 g/L @ 25°C (77F)</li> <li>- acetone : 72 mg/L @ 25°C (77F)</li> <li>- n-hexane : 184 mg/L @ 25°C (77F)</li> </ul>
Partition coefficient n-oct./eau	0.004 at 22°C / 72F => Log <sub>10</sub> P <sub>o/w</sub> = -2.39
Auto-Ignition Temperature (AIT)	No Auto-Ignition Temperature below 400°C (752F)
Decomposition temperature	This preparation is stable until its boiling temperature: solid active substance decomposes at 200-230°C (392-446 F)
Dynamic viscosity	1,2.10 <sup>-3</sup> Pa.s at 20°C (68F)
Cinematic viscosity	4.5 - 5.2 mm <sup>2</sup> /s at 20°C (68F)
Explosives Property	No
Oxidising Property	No
OTHER PROPERTIES	<ul style="list-style-type: none"> <li>- Complexes most of metallic cations (Fe<sup>2+</sup>, Cu<sup>2+</sup>, Ni<sup>2+</sup>, Zn<sup>2+</sup>, ...)</li> <li>- Cationic product not compatible with anionic compounds.</li> </ul>

n.a. = not applicable

9.2. Other information

Surface tension	71.5 mN/m @ 20°C. (at 1 g of PHMB a.i./L)
Sequestering	Complexes most of divalent metal cations (Fe, Cu, Ni,...)
Cationic product	Not compatible with anionic substances and their formulations (precipitate)
Oxydability	PHMB (main active ingredient) is oxidised by usual oxidisers: chlorine derivatives, ozone, ...

## ***SECTION 10: Stability and reactivity***

### 10.1. Reactivity

No spontaneous reaction, or incompatibility may cause a violent reaction.

### 10.2. Chemical Stability

Stable preparation between +10 °C and +75 °C

### 10.3. Hazardous Reactions

No dangerous reactions known.

### 10.4. Conditions to avoid

Temperatures below 6°C or > 50°C (<42F and >122F).

Exposure to direct sunlight (discolouration of the blue dye, without consequences to the product efficacy or stability). (\*)

### 10.5. Incompatible materials

Metals (iron or steel, Copper, Nickel ...) and solutions containing metal cations.  
Anionic substances or preparations containing anionic substances.

### 10.6. Hazardous Decomposition Products

No dangerous decomposition products known to date.

## ***SECTION 11: Toxicological information***

### 11.1. Acute toxicity

- Acute oral toxicity (OCDE 423, rat): DL<sub>50</sub> > 2000 mg/kg
- Acute dermal toxicity (OCDE 402, rat): DL<sub>50</sub> > 2000 mg/kg
- Acute inhalation toxicity (OCDE 403, rat): CL<sub>50</sub> = 1.85 mg/L ==> Xn, R20

### 11.2. Skin corrosion / Skin irritation

- Study OECD 404 (lapin): Psi = 2.0 ==> slightly skin irritant ==> Xi, R38

### 11.3 – Eye corrosion / eye irritation

- Etude OECD 405 (rabbit): IO = 35 ==> Product very irritant for eyes ==> Xi, R41

### 11.4 – Respiratory or skin sensitisation

#### Respiratory or skin sensitisation

No data.

#### Respiratory or skin sensitisation

- Study OECD 406 (guinea pig) ==> Not skin sensitive product.

### 11.6 – Repeated dose toxicity

No data.

### 11.7 - Carcinogenicity

Study in progress.

### 11.8 - Mutagenicity

- Studies OECD 471, OECD 473, OECD 476 : not mutagen nor pro-mutagen.

### 11.9 - Reproductive Toxicity

- Study OECD 414 : not repro-toxic.

11.8 - Effect on Development

No information.

11.9 – Specific Target Organ Toxicity – Single Exposition

No data.

11.10 – Specific Target Organ Toxicity – Repeated Exposition

No data.

11.11 - Other information

None.

**SECTION 12: Ecological information**

12.1. Ecotoxicity

- Ecotoxicity to algae (OECD 201) : CE<sub>50</sub> (72h) = 1 à 10 mg/L
  - Ecotoxicity in the crustacean (OECD 202) : CE<sub>50</sub> (96h) = 0.1 mg/L - NOEL > 0.001 mg/l (72h)
  - Ecotoxicity to fish (OECD 203) : CL<sub>50</sub> (96h) = 1 à 10 mg/L
  - Activated sludge: respiration inhibition test (OECD 209) : CE50 = 161 mg/L (3h)
- Conclusion: the preparation is classified as toxic to aquatic organisms ==> N, R50

12.2. Persistence and degradability

No data. Ongoing studies.

To date, according to our knowledge, PHMB is not biodegradable in the environment  
==> Voluntary labelling: N, R53

12.3. Potential to bio-accumulate

No data.

12.4. Mobility in soil

No data.

12.5. Results of PBT and vPvB assessment

No data.

12.6. Other adverse effects

No data.

12.7. Other Data

- The preparation is not toxic to earthworms (OECD 207 study: LC50> 1000 mg / kg soil)
- The preparation is not toxic to seed to a dose of 30 g / ha (OECD study 208)
- The preparation is not toxic to plants at a dose of 30 g / ha (OECD study 227)



### **SECTION 13: Disposal considerations**

#### 13.1. Waste treatment methods

(a) Contaminated packaging

- Rinse contaminated containers several times with water until the foam disappears. (\*)

- Pour the rinse water in the swimming pool water. (\*)

- Dispose of in accordance with current legislation according to the circuits locally authorized.

The neutralization of the preparation is performed by oxidation with strong oxidants such as chlorine compounds, ozone,... (physico-chemical neutralization). Dispose of in accordance with current local legislation

(b) This preparation is a biocide product. So, do not neutralize it through a bacteriological wastewater Treatment Plant.

(c) Do not drain into a domestic sewage system.

### **SECTION 14: Transport information**

Transport classification according to European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR)

14.1. UN number: UN 3082

14.2. UN proper shipping name: hazardous material from the point of view of the liquid environment-NSA (PolyHexaMethylene Biguanide)

14.3. Transport hazard classe(s): 9 ==> Labels: 9

14.4. Packing group: III

14.5. Environmental hazards

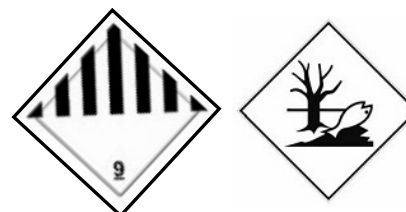
- Tunnel Code (ADR): E

- Dangerous for the environment: Yes

- Marine pollutant: Yes (see the MEPC resolution N°156(55): "amendments to annex III of MARPOL 73/78")

14.6. Special precautions for user: -

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



Other information:

- Transport under the exemption in Limited quantities, LQ = 5L / 30 kg

### **SECTION 15: Regulatory information**

Regulation 2037/2000/EC of the European Parliament and of the Council of 29 June 2000 on substances that deplete the ozone layer: not concerned.

Regulation 850/2004/EC of the European Parliament and of the Council of 29 April 2004 on persistent organic pollutants and amending Directive 79/117/EEC: not concerned.

Regulation No 689/2008/EC of the European Parliament and of the Council of 17 June 2008 concerning the export and import of dangerous chemicals: not concerned.

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

- Substance not named in Annex I of Council Directive 96/82/EC (Seveso)

- Seveso category N°1172

## 15.2. Chemical safety assessment

Chemical safety assessment: not available

France: Synapse N°..... *in progress*

France: MEEDDAT N°DI-12-02399

Custom N° (intracom) = 2933.99.89.00

## **16. SECTION 16: Other information**

### Agreements

- Agreed in the USA as a sanitizer for pool water treatment by the Environment Protection Agency (EPA). Agreement N°69 461-1 (June 9, 1998).
- Agreed in France as a sanitizer for public pool water treatment by the Ministry of Health (DGS). Arrêtés des 28.09.1989, 18.01.2002 and March 17, 2007.

### Meanings of the R-phrases used in this MSDS:

R20	Harmful by inhalation
R22	Harmful if swallowed
R23	Toxic by inhalation
R34	Causes burns
R35	Causes severe burns
R37	Irritating to respiratory system
R38	Irritating to skin (*)
R41	Risk of serious damage to eyes
R43	May cause sensitisation by skin contact
R50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment
H302	Harmful if swallowed
H314	Causes severe skin burns and eye damage
H318	Causes serious eye damage
H317	May cause an allergic skin reaction
H335	May cause respiratory irritation
H400	Very toxic to aquatic life
H410	Very toxic to aquatic life with long lasting effects

### Meanings of the acronyms used in this MSDS:

Cat	Category
STOT	Specific Target Organ Toxicity
SE	Single Exposition
PBT	Persistent, Bio-accumulative and Toxic substances
vPvB	very Persistent and very Bio-accumulative substances

The information contained herein is based on the state of our knowledge, data and our knowledge of key legislation and regulations relating to the product at the time of updating this document.

This safety data sheet has been written for the specific material designated.

An appropriate training for workers in charge of handling/using this product should be organized to ensure their health protection and the protection of the environment.

See the instructions for product use on the labels or cards advice of your professional retailer.