



## **HOPPALOX TECHNICAL DATA SHEET: GERMICIDE DESINFECTION AND COD/BOD REDUCTION DEVICE**

**Industrial application: maintenance and regeneration of cutting fluids  
Technology held by: Hoppal R&D SA**

Data sheet ref. 09180

The aim of this technology is to process oil emulsions used for cooling and lubricating metal cutting and machining tools. The emulsions containing an organic phase of 5 to 10% and 90 to 95% of water are submitted to degradation which turns it gradually useless and pollutant, namely due to:

- Overconcentration of basic products due to evaporation of the aqueous phase of the emulsion,
- Presence of hydraulic or slideway oils,
- Presence of metal particles,
- Development of bacteria and fungi which are pathogenic for human being.

At the end of the life cycle, the emulsions must be disposed within very expensive specialized networks.

The Hoppalox process, thanks the increase of the vital cycle of emulsions, allows reducing:

- Emulsion consumption and consequently the purchase of new products,
- The amount of emulsion to be disposed at the end of the life cycle.

It allows also:

- Increasing quality of machining and reducing impact on the health of workers which are exposed to cutting fluids: lung fibrosis by working in an environment contaminated by air transported microorganisms (bacteria, moulds and algae).

Such results are obtained by means of:

- A de-oiling system which allows to separate fully slideway and hydraulic oils from the aqueous phase,
- A germicide processing of the aqueous emulsion by nascent oxygen obtained in a catalytic reactor, without any other chemical agents based on halogenated compounds. The germicide and bactericide action on aerobic and anaerobic germs, as well as a fungicide and algacide action.
- The supply of a germicide liquid (H<sub>2</sub>O + nascent oxygen) does contribute to balance the evaporation of water from the emulsions in contact with the metal.

**Description of processing**



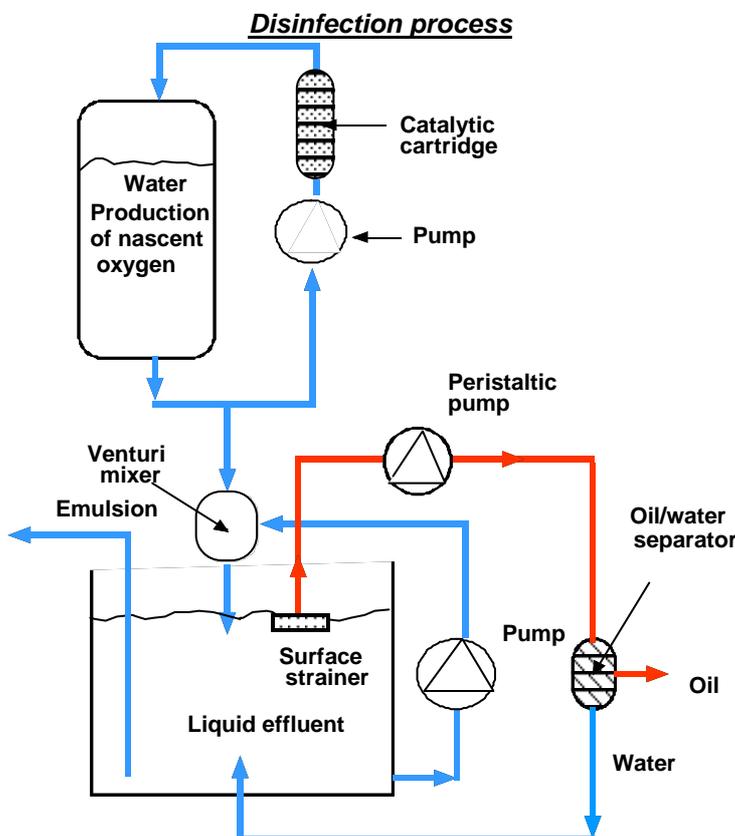
Size : 82cm x 64cm x 69cm

The de-oiling process performed in parallel on the tank containing the emulsions is described in the technical sheet, ref. 09179.

The continuously emulsion regenerating process is made out of:

**a)** A device producing nascent oxygen by catalytic reaction on mineralized water. The production of nascent oxygen can be regulated according to the needs.

The supply of water is adjusted in proportion to its consumption (about 1 to 2 litres/hour, on the standard facilities).



**B)** Of a « venturi » mixer between the germicide water (H<sub>2</sub>O + nascent oxygen) and the aqueous emulsion. The quantity of water injected - loaded with nascent oxygen - can be adjusted in function of the bath to be processed.

The system can run 24 hours a day without any particular control.



**Consumables**

Water		From 0 à x litres / hour (adjustable)		
Electricity		kWh/h	Flow	Tension
	Water pump	0.45 P absorbed 0.33 P nominal	1,5m <sup>3</sup> /h à 1,8 bar	230 v
	Pump on emulsion circuit	0.45 P absorbed 0.33 P nominal	1,5m <sup>3</sup> /h à 1,8 bar	230v
Catalysis of mineralized water	Active coal grafted on pure silver metal	1 cartridge of 2 litres which has to be replaced annually		

**Maintenance**

No maintenance is required beside the replacement of the cartridge. It is recommended to measure the pH of the emulsion which indicates the anaerobic degradation of such emulsion.

**Saving by using the Hoppalox process:**

By extending 3 times the duration of use of the fluid, the saving on purchase of new emulsions and on disposal costs, at the end of the life cycle, is of 2/3.

**For this technology an application for an international patent/made in Switzerland has been lodged.**

For any commercial information:

**OXYBAC SA**  
69, rue du Rhône  
CH 1207 Geneva  
+41 (022) 700 38 02  
E-mail: [oxybac@bluewin.ch](mailto:oxybac@bluewin.ch)

For any technical information:

**Hoppal R&D SA.**  
E-mail : [hoppalrd@bluewin.ch](mailto:hoppalrd@bluewin.ch)

