

**MANUFACTURER OF TECHNICAL AEROSOLS AND PRODUCTS FOR INDUSTRY
PROCESSES - MRO - MAINTENANCE
ALTERNATIVE SOLVENTS 100% SAFE**

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**NEXT-GENERATION SOLUBLE CUTTING FLUID
OPTIMUM REMOVAL OF CUTTINGS BY NANO LUBRICATION
CUTTING FLUID FOR ALL TYPES OF OPERATION
USABLE ON ALL METALS, FERROUS OR NON-FERROUS
BIOSTABLE, GUARANTEED BACTERICIDE-FREE, HYPOALLERGENIC**

The definitive solution for your problems of managing soluble oil baths

iBiotec ETERNA 3000

DESCRIPTION

A cutting fluid is essentially used for four reasons

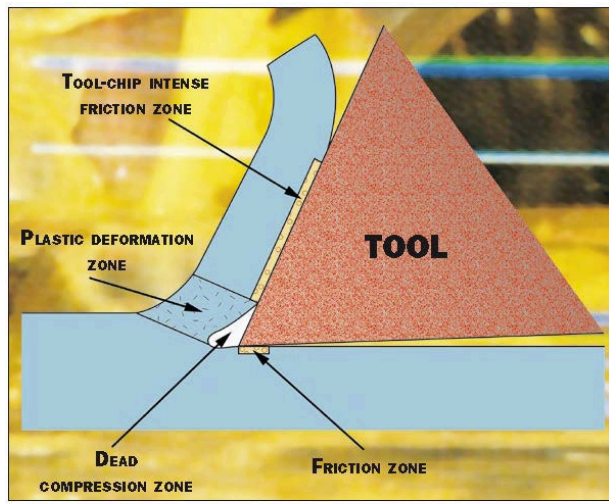
- 1** Cool
- 2** Remove chips
- 3** Lubricate, decrease friction
- 4** Protect machined parts against corrosion



TO MAKE **1** AND **3** WORK EFFICIENTLY :

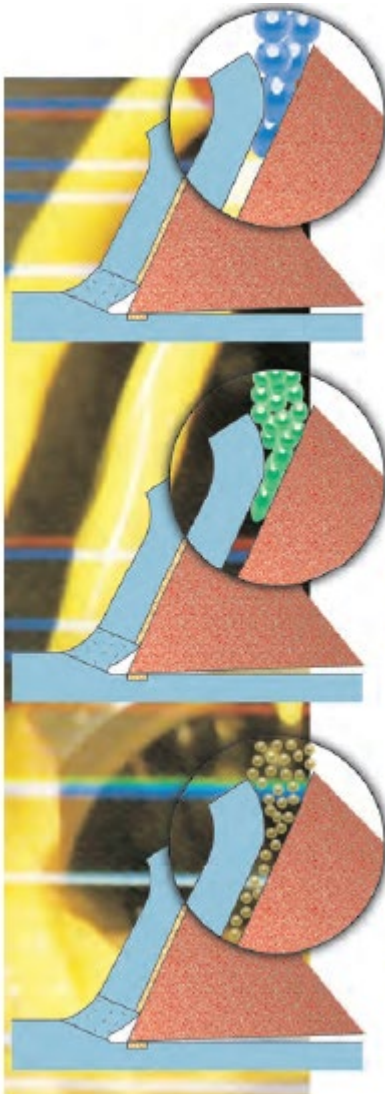
THE LUBRICANT HAS TO PENETRATE BETWEEN THE CHIP AND THE TOOL.

The cutting fluid must have an exceptional wetting power to do this : penetration at the interface by capillary action.



C H I P F O R M I N G

Tool wear results from very severe mechanical loads, aggravated by heat, at the tool-part and tool-chip interface.



Congestion of emulsion molecules does not allow for sufficient penetration between the tool-chip interface.

Congestion of micro-emulsion molecules is less, but penetration is still insufficient in the tool-chip interface.

The infinitely small molecular congestion with **ETERNA® 3000** allows for complete penetration between the tool and the chip. This is the nanolubricating principle.

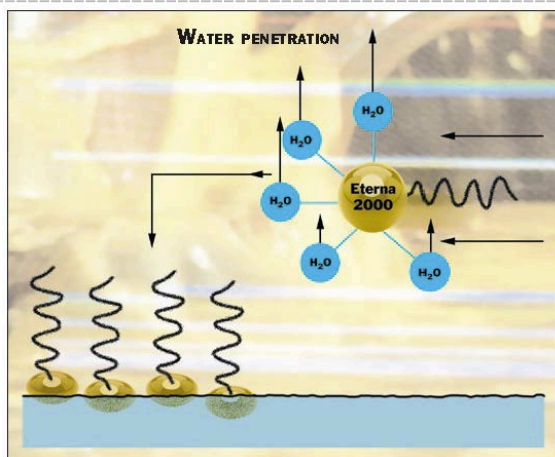
ETERNA® 3000

PENETRATES THE TOOL INTERFACE

Capillary penetration is related to the surface tension of the fluid and the congestion of particles containing the active molecules.

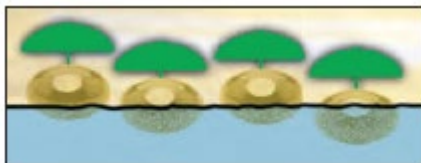
ETERNA® 3000

Reacts strongly with the machined surfaces



The **ETERNA® 3000** active molecules convey water to the interface.
(low congestion, low surface tension)

The evaporation of water entails highly efficient cooling.



- Simultaneously, the **ETERNA® 3000** molecules react and are vigorously adsorbed by the machined surfaces. In this manner, they considerably reduce the friction coefficient.

- Furthermore, **ETERNA® 3000** molecules perfectly protect surfaces against corrosion.

FIELDS OF USE

Production operations	% recommended uses
Turning, small parts turning	from 5 to 8% in water
Milling, face milling, slotting	from 5 to 8% in water
Drilling, boring, threading, tapping	from 6 to 10% in water
Sawing	from 5 to 8% in water
Trimming of soft metals	from 8 to 12% in water
Finishing operations	% recommended uses
Sharpening	from 4 to 6% in water
Boring	from 4 to 6% in water
Flat or cylindrical grinding	from 1.5 to 2.5% in water
Polishing	from 1.5 to 2.5% in water

Note: the refractometer correction factor of **ETERNA 3000** is 1.5.
 A 4% reading with a refractometer will establish a bath concentration of 6%.

Machinable metals:

Steels, stainless steel, Inconel, Monel, aluminium and its alloys (except aluminium with silicon), copper and its alloys, CFRP including sandwiches, GFRP.

PHYSICO-CHEMICAL PROPERTIES TYPICALS

PHYSICAL PROPERTIES OF THE LUBRICATING OIL			
PROPERTIES	STANDARD or METHOD	VALUE	UNITS
Appearance	visual	Clear	nm
Colour	Visual	Yellow to brown	nm
Scent	Olfactory	Light, characteristic	nm
Density at 25°C	NF EN ISO 12.185	1056	kg/m ³
Freezing point	ISO 3016	-4	°C
Viscosity at 40°C	ISO 3104	16.7	mm ² /s-1
Refraction index		1.4240	
pH	ISO 4925	8.6 at 5%	
HERBERT test	IP 287	goes to 1	%
Cast iron/stainless steel corrosion	CNOMO	goes to 1	%
Foaming test: at 5% Th 35 at 5% Th 20 at 5% Th 0	NF T 60.188	300/40/0/0/250 300/40/0/0/250 300/100/0/0/250	
Chlorine content	argentometry	<20	ppm
Sulphur content	gravimetric analysis	<50	ppm
Nitrite content	redox	0	
Boron content	potentiometry	0	
Phosphorus content	calcination/colorimetry	0	
Heavy metals content	mineralisation/spectro AA	<1	ppm
Refractometer correction factor	-	x1.5	
Copper blade corrosion	NF EN ISO 2160	1a	
Copper blade corrosion	NF EN ISO 2160	1a	

PRESENTATIONS



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