

# HAROLBIO 1 SI PLUS

Biodegradable-based neat cutting lubricant



## DESCRIPTION

It is a neat fluid lubricant, very fluid, clear, light brown in color, with a very moderate and pleasant smell, free from mineral oil, formulated for chip removal operations of ferrous and non-ferrous materials.

It is obtained from a mixture of synthetic bases, consisting of totally saturated synthetic esters, biodegradable and highly stable to hydrolysis and oxidation, and to anti-soldering additives E.P. for Extreme Pressures of inactive sulfur type, antioxidants, rust inhibitors and metal passivators, which, by exerting a synergistic action, give rise to a product with exceptional performance.

It guarantees:

- absence of fumes and vapors in processing and formation of dry and crusty residues, even over time;
- a high flash point for operations in absolute safety
- excellent smoothness even at low temperatures and exceptional wetting power, so the oil disperses quickly and uniformly on the metal surface;
- excellent untuosant power

- exceptional cutting, EP and lubricant-release agent for very high quality finishes;
- very high antiusur power
- excellent both resistance to oxidation and rust and passivation of non-ferrous alloys;
- very reduced tendency to the formation of mists, in particular in the presence of high pressures of the oil jets or high spindle rotation speeds;
- low piece temperature works
- well-crushed and broken pieces of waste
- biodegradabilità;
- maximum tolerability on the part of operators.

The product is free from chlorinated compounds, active sulfur compounds, Zinc and IPA (Polycyclic Aromatic Hydrocarbons).

## APPLICATIONS

All cutting and removal of all ferrous materials, in particular hard and extra hard steels and stainless steels, aluminum alloys and yellow alloys, where a very low viscosity is required.

## TYPICAL PROPERTIES\*

The product is easily biodegradable.

Property	Method	Results	Limits
Biodegradability, %	OECD 301 B	>60	>60

## AVERAGE CHEMICAL AND PHYSICAL PROPERTIES\*

Characteristic	Method	U.m.	Value
Physical Aspect	Visivo/Visual	-	liquido limpido arancione
Density at 20°C	ASTM D 7042	Kg/lt	0,874
Viscosity at 40°C	ASTM D 7042	cSt	12,5
Viscosity at 100°C	ASTM D 7042	cSt	3,54
Viscosity Index	ASTM D 2270	-	177
Brugger	DIN 51347	N/mm <sup>2</sup>	102
Flash Point V.A.	ASTM D 92	°C	190
Fire point	ASTM D 92	°C	215
Pour Point	ASTM D 97	°C	-12
Turbid Point (neat oil)	P.O. 10.64	°C	-2

\*This data do not constitute specification

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