

Biowas EP3

Description:

WASCUT Biowas EP3 is a water miscible cutting oil (emulsion) based on a plant oil derivative. As opposed to conventional mineral oil based emulsions **WASCUT Biowas EP3** is environmentally friendly. The product is mild on skin and lungs, in comparison with mineral oil based emulsions, and has an exceptional lubricity. **WASCUT Biowas EP3** is low foaming in soft water.

Health conscious product

WASCUT Biowas EP3 is formulated from materials that are not known as health endangering, according to past and current toxicological studies.

WASCUT Biowas EP3 contains no secondary amines, which can react to form carcinogenic nitrosamines in the presence of nitrite. Chemicals which can absorb through the skin, attack organs, and which are teratogenic (ex. monoethanolamine), chlorinated or fluorinated hydrocarbons, PCB's, PCT's, borine, isothiazolinone, formaldehyde or formaldehyde release agents, nitrite and nitrate are all not contained in **WASCUT Biowas EP3**.

Gentle to the skin

Mineral oil in conventional emulsions wash natural oils out of the skin. The plant oil derivatives in **WASCUT Biowas EP3** have a refatting effect on the skin, which prevent dry skin, and thus help prevent skin problems.

Environmentally friendly

WASCUT Biowas EP3 is a low burden on the environment, in comparison to mineral oil based products. The major component, and many minor components, of **WASCUT Biowas EP3** are based on renewable resources, such as plant products. In the event that **WASCUT Biowas EP3** is accidentally released into the environment, it is readily biodegraded in dilution. This happens regularly when emulsion mist, emanating from the metal working machine, leaves the factory through ventilation and lands in the area around the factory. The very good biodegradability of **WASCUT Biowas EP3** reduces the negative impact of emulsions on the environment, as well as accumulating soil contamination in the immediate vicinity of the factory.

Long tool life

The 55% plant oil derivatives in **WASCUT Biowas EP3** are an extreme pressure additive. The resulting increased lubricity prolongs tool life in comparison to most other emulsions on the market. This reduces expenditures by saving tool costs and reducing down time of the machine.

Better surface finish:

The high concentration of extreme pressure additives in **WASCUT Biowas EP3** help give a very good surface finish of machined workpieces, also when performing sophisticated machining operations.

Long emulsion life

The well-balanced formulation leads to a long emulsion life, when properly used.

Good corrosion protection

WASCUT Biowas EP3 has a reliable corrosion protection for metal working machines and workpieces.

Low foam in soft water

WASCUT Biowas EP3 is formulated to be low foaming in soft water. For tap water with more than 100 ppm (mg CaCO₃/l) we recommend using **WASCUT Biowas EP1**.

No staining of non-ferrous metals

WASCUT Biowas EP3 is not corrosive to most aluminum- and copper-based alloys, and helps prevent discoloring of these alloys.

Technical Data

<i>Characteristics</i>	<i>Units</i>	<i>Typical value</i>	<i>Determination method</i>
Concentrate:			
Color		Golden yellow	Optical
Density at 20°C	g/ml	0.93 ± 0.05	DIN 51 757
Viscosity at 20°C	mm ² /s	40 ± 10	DIN 51 562
Mineral oil content	% by weight	0	Via formulation
Water content	% by weight	4 ± 3	Via formulation
Extreme pressure (EP) additives			
Plant oil derivates	% by weight	55 ± 5	Via formulation
Chlorine	% by weight	0	Via formulation
Phosphorous	% by weight	0	Via formulation
Borine	% by weight	0	Via formulation
Formaldehyde	% by weight	0	Via formulation
Emulsion:			
pH-Value 2%-ig		8.9 ± 0.1	DIN 51 369
pH-Value 10%-ig		9.0 ± 0.1	DIN 51 369
Stickiness of residue	5 % in 50 ppm water	Not sticky	VKIS Page 9
Residue texture	5 % in 50 ppm water	Oily	VKIS Page 9
Foaming behaviour	(Hand shake 50 ml in 100 ml cylinder)		Shaking test
5% in 50 ppm water	ml	Low foam	
after 24 hours	ml	Low foam	
Refractometer factor		1.0	

Recommended Concentration

Machining operation	Our recommendation
Turning, drilling, milling, sawing	6 to 8 %
Machining free cutting steel	6 to 8 %
grinding	6 to 8 %
Deep hole drilling, thread cutting	8 to 15 %
Reaming	8 to 15 %
Broaching	8 to 15 %

Remark: The concentration of **WASCUT Biowas EP3** should be kept above 5% at all times, so that the high-quality biocide package is concentrated enough to protect the emulsion against microbial attack.

Metals

WASCUT Biowas EP3 is suitable for machining the following metals:

Steel, high alloy steel, free cutting steel, gray cast iron

Aluminum alloys

Copper alloys

Titanium-, Chromium- and Nickel-based alloys (avoid dissolved nickel in the emulsion!)