YOUNG BUHMWOO INDIA COMPANY PRIVATE LIMITED

CUTTING & GRINDING OIL



1. WHAT IS CUTTING / GRINDING OIL?

Cutting is the process which is most widely carried out in several metal working industries. It is a process which is carried out in a metal industry to get the specified shape and dimension of the end product. Cutting is done by a cutting tool which is normally harder than the component or work piece. The main reason for tool damage is due to high temperature generated during the cutting process by the frictional forces between the tool and the job.

In order to reduce the temperature, water was used for cooling, by pouring water at the cutting point. This process of cooling increased tool life, but had other problems like finish roughness, rusting property, etc. But nowadays research and development has proved that both oil and water at different ratios helps to solve these problems. By experience, it was noticed that the tool life and the required finish can be obtained by using water soluble type coolant with the combination of water and oil. Cutting oil gives the secondary effects like chip removal and short term anti-rusting property for the work pieces.

1.2 SELECTION OF INDUSTRIAL WATER

The quality of industrial water is a very important factor in using water soluble oils, it has a great effect on following items;

1) Oil life 2) Tool life 3) Roughness of finished surface 4) Effectiveness of filtering 5) Foaming 6) Rust and decomposition

So, complete checking of the quality of the industrial water is necessary, we should use suitable industrial water for water soluble oils. If hard water is used for dilution, a portion of water soluble oil does not dissolve properly and it remains in a gum state, which adhere on the machines and its parts. So, it lowers the efficiency of oil and causes rust on the machines and work pieces. Chlorides and Sulfides in water are the main reason for rust and corrosion.



1.3 SELECTION OF CUTTING OIL



The cutting oil is usually selected, by considering the oil characteristics like lubricity, antistickiness and restricted conditions like working method and raw materials of work pieces. Neat oil or water soluble type is usually selected based on lubricity and anti stickiness, considering the working method and raw materials, the oil is decided. After selecting an oil, it is checked for primary and secondary effects, when some problems are noticed, some other type of oils has to be selected.

4. PRODUCT INFORMATION

4-1. WATER SOLUBLE CUTTING / GRINDING OIL

PRODUCT	APPEARANCE (DILUTED)	рН (Vol. 5%)	CONC (Vol. %)	CAST IRON	STEEL	ALUMINI UM	APPLIC ATION	REMARKS
YBI BELCOOL TRIBO	White milky emulsion	9.6 ± 0.5	5~10	Ρ	Ρ	Ρ	Cutting	- Conventional type. - Light duty machining. - Low cost.
YBI BELCOOL EC-50	White milky emulsion	9.8 ± 0.5	5~10	Ρ	Ρ	Ρ	Cutting	- Conventional type. - Medium duty machining. - Low cost.
YBI BELCOOL EC-200CW	White milky emulsion	9.9 ± 0.5	5~20	Ρ	Ρ	Ρ	Cutting	 Conventional type. Heavy duty machining. Contains EP additives. Can be used for water soluble type broaching & low duty punching operations.
YBI BELCOOL EZ-900	White milky emulsion	10.0 ± 0.5	5 10	Ρ	Ρ	-	Cutting	 Bio stable type. Medium duty machining. Excellent lubricity. Improves surface finish. Better anti-rust property.
YBI BELCOOL EZ-500	White milky emulsion	9.7 ± 0.5	5 15	Ρ	Ρ	Ρ	Cutting	 Bio stable type. Medium duty machining. Excellent lubricity. Improves surface finish. Specially designed for Aluminium jobs.
YBI BELCOOL MIC- 350Q(CW)	White emulsion	9.2 ± 0.5	5~15	Ρ	Ρ	Ρ	Cutting	 Medium duty machining. Excellent lubricity. Can perform even in high hardness water condition.
YBI BELCOOL MIC-200i	Blue transparent	10.1 ± 0.5	5 10	Ρ	Ρ	Ρ	Cutting, Grinding	- Semi synthetic type with mineral oil. - Light duty machining
YBI BELCOOL SYN #2006	Light yellowish transparent	9.2 ± 0.5	5 15	Ρ	Ρ	-	Cutting, Grinding	 Semi synthetic type without mineral oil. Light duty machining. Applicable for water soluble Honing.
YBI BELCOOL SYN #990	Blue transparent	9.8 ± 0.5	5 15	Ρ	Ρ	-	Cutting, Grinding	 Semi synthetic type without mineral oil. Light duty machining. Excellent de-foaming property during high speed operation.
YBI BELCOOL SYN #310	Colourless transparent	8.6±0.5	5 10	Ρ	Ρ	-	Grinding	- Fully synthetic type. - With Lubricity - Light duty machining. - Allow operators to see clearly.
YBI BELCOOL SC-48CW	Colourless transparent	9.8 ± 0.5	5 10	Ρ	Ρ	-	Grinding	- Fully synthetic type. - Lubricity nil. - Allow operators to see clearly.

4-2. NEAT (STRAIGHT) CUTTING OIL

PRODUCT	APPEARANCE	VISCOSITY (40°C, mm²/s)	FLASH POINT (°C)	Cu CORROSION TEST (100 °C)	s	CI	FAT	4- BALL WELD LOAD (kg)	APPLICATION & PROPERTIES
YBI BELCUT CL-5i	Colorless transparent	2.6 ± 0.3	110 ± 11	1	-		-	-	Grinding, Lapping.
YBI BELCUT CB-2i	Colorless transparent	9.7 ± 1.0	180 ± 18	1	-		P	-	- Light duty machining.
YBI BELCUT IBN-5i(CN)	Yellow transparent	25 ± 2.5	Min 180	1	-		Ρ	-	Hobbing, Drilling.
YBI BELCUT BN-20i	Colourless transparent	7.5 ± 1.0	155 ± 15	1	-		P	160	- Light duty machining.
YBI BELCUT BN-3N(i)	Yellow transparent	15.3 ± 1.5	180 ± 18	1	-		Ρ	160	- Light duty machining.
YBI BELCUT BN-7N(i)	Yellow transparent	29 ± 3.0	206 ± 20	1	-		Ρ	200	- Gear hobbing, Thread cutting. - Excellent lubricity. - Improves tool life.
YBI BELCUT BN-8i	Yellow transparent	22 ± 2.0	196 ± 19	1	-		Ρ	250	- Gear hobbing, Thread cutting.
YBI BELCUT DS-50i	Yellowish brown semi transparent	14.5 ± 1.5	170 ± 17	1	Ρ		Ρ	315	- Deep hole drilling, Gun drilling.
YBI BELCUT IB-65Y(CN)	Dark brown transparent	18 ± 1.8	164 ± 16	3	Ρ		Ρ	315	- Shaving, Shaping, Broaching, Tapping.
YBI BELCUT IUB-75N(CN)	Dark brown transparent	25 ± 2.5	184 ± 18	2	Ρ		Ρ	-	- Deburring, Shaving, Chamfering.
YBI BELCUT SUPER-X(I)	Yellow transparent	16.5 ± 1.6	170 ± 17	4	Ρ		Ρ	500	- Broaching
YBI BELCUT IH-35G(CN)	Yellow transparent	3.1±0.3	112 ± 11	1	P		P	160	- Honing, Lapping.
YBI BELCUT IH-37(CN)	Light yellow transparent	3.3±0.3	110 ± 11	1	-		P	-	- Honing, Lapping. - Can be used for Copper & its alloys.
YBI BELCUT BN-360i	Yellow transparent	8.0 ± 0.8	150 ± 15	2	Ρ		P	250	- Super finishing, Grinding.
YBI BELCUT MQL-2CN(i)	Yellow transparent	34 ± 3.4	260	1	-		P	126	- Minimum quantity lubrication.