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Extremely biodegradable high performance cycle oils

Rivolta S.K.M.-cycle oils are high performance cycle oils of the fourth generation. The combination of high quality synthetic base oils with a brand new additive technology will give a performance spectrum to our S.K.M.-cycle oils which is superior to conventional oils.

Especially in the area of mixed friction S.K.M.-cycle oils reduce the consumption of energy, raise the operating safety and extend the life-time of machines and facilities.

The property

- **extremely biodegradable**
- **minimal wear and friction**
- **aging- and oxidation-resistance**
- **operative temperature range from -57°C up to +120°C**
- **no classification necessary according to the German hazardous substances ordinance**
- **good compatibility with seals, good miscibility with mineral oils**

will give the following benefits

- safe in cases where the lubricant can get into the environment
- raised economy by reduced consumption of energy, extended life-time of machines and facilities
- long-term use of the lubricant, extended service intervals, reduced maintenance, reduced labour costs
- qualified for use in a wide temperature range while maintaining the high technical performance ability
- S.K.M.-cycle oils stand for a maximum of personal protection. The appropriate use of S.K.M.-cycle oils does not create any risks for the workers' health. S.K.M.-cycle oils can also be used in the food industry according to German regulations.
- minimal efforts when changing from mineral to synthetic lubricants

**Rivolta S.K.M.-cycle oils
combining extreme biodegradability with high technical efficiency**

Rivolta®

S.K.M. 17/41/46/56

Extremely biodegradable high performance cycle oils

synthetic extremely biodegradable ester oils with anti-wear, anti-ageing and anti-corrosion additives						
Colour: brownish-transparent			Odour: very faint			
Technical data	Unit of measurement	Norm	S.K.M. 17	S.K.M. 41	S.K.M. 46	S.K.M. 56
Density	g/ml	DIN 51757	0.944	0.934	0.935	0.924
ISO viscosity grade	-	DIN 51519	22	68	100	150
Viscosity at 20°C	mm ² /s	DIN 51562	52	195	290	450
Viscosity at 40°C	mm ² /s	DIN 51562	22	68	100	150
Viscosity at 100°C	mm ² /s	DIN 51562	4.7	10.3	13.5	17.5
Viscosity index	-	DIN ISO 2909	>140	>140	>140	>130
Flash point	°C	DIN EN ISO 2592	180	185	185	185
Pour point	°C	DIN ISO 3016	-60	-37	-35	-33
Operative temperature range	°C		-57/+100*	-34/+120*	-32/+120*	-30/+120*
Corrosion protection to steel	-	DIN 51355	0-A	0-A	0-A	0-A
Corrosion protection to copper	-	DIN EN ISO 2160	1	1	1	1
Air release	min	DIN ISO 9120	1.0	2.0	2.4	3.5
F.Z.G.-Test 8.3/90	-	DIN 51354	-	>12	>12	>12
S.R.V.-Test**		DIN 51834				
• Friction coefficient μ min.	-		0.04	0.04	0.04	0.04
• Friction coefficient μ max	-		0.06	0.06	0.06	0.06
• Wear rate ball	mm		0.45	0.45	0.45	0.45
• Wear rate disc	μ m		<1.50	<1.50	<1.50	<1.50
* permanent temperature, short-termed use up to 160°C						
** Swing wear tester, T = 100°C, F = 200 N, 1,000,000 load changes (5.5 hours)						
Ecological data						
Mammal toxicity	mg/kg	OECD Guidelines No. 401	>5000	>5000	>5000	>5000
Fish toxicity	g/l	DIN 38412/15	2.8	2.8	3.3	3.7
Biodegradability	% by weight	CEC-L-33	>80	>80	>80	>80

Applications

- **chains:** especially suitable for indoor and outdoor escalators
- **bearings:** oil lubricated rolling and plain bearings
- **hydraulics:** for hydraulics of all kinds and hydraulic motors
- **gears (spur, helical, double helical gears), e.g.:** spur gears, mitre gears, helical gears, mitre gears with axial offset, bevel gears, worm gear pairs
- **in general:** for chains, levers, joints, guide rails and other movable parts, which are frequently lubricated by an automatic lubricating system

Compatibility

- compatible with seals resistant to mineral oils
- mixable with mineral and ester oils. Do not mix with polyethylene glycol

Preparing of lubrication point

The following steps have to be carried out before new filling with S.K.M. cycle oils:

- Leave off the old product. If the system was filled with a mixable product, a special flushing is not necessary. However, for the purposes of purity of grades we recommend a flushing with the S.K.M. cycle oil which shall be used.
- If the system was filled with a product which is not mixable a flushing must be included.

This text contains facts and statements and is determined with our best knowledge and will be checked continuously. These statements are depending - among other reasons - on experiences gained in the industry. We only pass them on without liability. Before using our products you should test the applicability and you should convince yourself about the satisfactory performance. Our application examples and suggestions should not request to violate patent rights.