



## BIO 2050 Adhesive Oil for Saw Chains

EU Ecolabel: DE/027/001



**KAJO-BIO 2050 Adhesive Oil for Saw Chains** is made from specially selected vegetable oils. These vegetable oils contain shear-stable adhesive additives, as well as additives based on natural raw materials which improve the behaviour in the mixed friction area. These additives guarantee a good lubrication during high chain speeds.

### ***Practical advantages:***

**KAJO-BIO 2050 Adhesive Oil for Saw Chains** is used for lubricating fast running motor and electric saws for all types of woods.

Furthermore, our **KAJO-BIO 2050 Adhesive Oil for Saw Chains** is especially suitable for lubrication of slideways and chain block devices during wood transport. Due to its outstanding lubricating properties and its adhesiveness it remains at the lubricating point and leads to reductions of the coefficients of friction and wear. Additionally, the

addition with anti-oxidants leads to prolonged service life (see aging).

### ***Environment:***

**KAJO-BIO 2050 Adhesive Oil for Saw Chains** is 100 % biodegradable when used properly. When used properly, it is toxicologically recognized as safe and practically harmless to surface and groundwater.

**KAJO-BIO 2050 Adhesive Oil for Saw Chains** meets

- a) the requirements of the Federal Environmental Agency
- b) the requirements of the serviceability (KWF)

and is entitled to carry the eco-label „Blauer Engel“ according to RAL-UZ 48 as well as the European Ecolabel with reg.-no. DE/027/001.



## BIO 2050 Adhesive Oil for Saw Chains

**Ratings:**

Properties	Value	Unit	DIN/ISO
Density at 20 °C	920	kg/m <sup>3</sup>	EN ISO 12 185
Viscosity at 20 °C	105	mm <sup>2</sup> /s, cSt	DIN 51 562
at 40 °C	50	mm <sup>2</sup> /s, cSt	
at 50 °C	36	mm <sup>2</sup> /s, cSt	
at 100 °C	11,2	mm <sup>2</sup> /s, cSt	
Viscosity index (VI)	225		ISO 2909
Flash point	>300	°C	ISO 2592
Pourpoint	-25	°C	ISO 3016
VKA-Welding load	2000/2200	N	
Threading acc. to KCM	130	mm	
Colour (ASTM)	3		ISO 2049
Preservability	24	months	
Working stress acc. to Brugger	37	N/mm <sup>2</sup>	
Minimum requirements acc. to KWF	27	N/mm <sup>2</sup>	

**Flow behaviour when cold:**

Fresh oil	1	sec.	
Test method KWF -15 °C and 168 h	1	sec.	
Flow time in measuring area (Annex 1) minimum requirement	<15	sec.	

**Aging:**

Test method acc. to KWF Heating in glass dish 80 °C / 120 h			
Flow time fresh oil			
Flow time after 120 h	2	sec.	
Flow time after 240 h	2	sec.	
Flow time after 360 h	2	sec.	
Flow time after 480 h	2	sec.	
Flow time after 1000 h	2	sec.	
Flow time after 4500 h	<15	sec	
Minimum requirement after 1000 h	<15 above initial flow time	sec.	

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All ratings are average values and are subject to production-related variations.



## BIO 2050 Adhesive Oil for Saw Chains

### **Determination of flow behaviour when cold**

#### **1. Devices:**

Cold chamber, temperature adjustment up to  $-30\text{ }^{\circ}\text{C}$  (243 K)  
Pour point vessel with an additional marking according to the drawing  
Thermometer  
Stop watch

#### **2. Carrying out:**

The appropriate pour-point vessel is filled with the oil sample up to the first mark. Then it is stored without cover in the cold chamber at  $-15\text{ }^{\circ}\text{C}$  (258 K). After 168 hours of cooling, the test vessel is taken out and turned immediately by  $90^{\circ}$  from the vertical into the horizontal position. Then one measures the length of time required until the second mark is reached.

#### **3. Minimum requirement:**

Flow time in the measuring area  $< 15\text{ sec.}$



## BIO 2050 Adhesive Oil for Saw Chains

### *Determination of the aging behaviour*

#### 1. Devices:

Warming cabinet with an adjustable temperature between 50° C and 100° C (323 K – 373 K).  
Petri dishes with 90 mm diameter with marking according to the drawing.  
Device for holding the petri dishes.  
Stop watch.

#### 2. Carrying out:

6 grams of the oil sample are filled into the clean Petri dishes. Then these are stored in the warming cabinet at a temperature of 80° C, without circulating air. After a warming period of 1.000 hours, the test dish is taken out and cooled down to room temperature (20° C ± 2° C). Thereafter the flow time is determined by arranging the dishes on a device at an inclined position of 25°.

Measure the time until the oil reaches the marking.

Each test is made with 3 test dishes. Each test dish is measured five times, each time it is turned by 72°. The measurements are taken at 10 minutes intervals.

#### 3. Minimum requirements:

Flow time in the measuring area < 15 sec. above initial flow time.