

Precise Fluid 2001

High-Performance Heat Transfer Fluid for the Temperature Control of Machine Tools

In recent years, machining precision at the micron and even submicron level has been required. Such high levels of precision cannot be achieved solely through mechanical adjustments. It is also necessary to eliminate thermal displacement caused by heat emission from rotating bodies. To meet this need, **Precise Fluid 2001** has been developed as a high-performance temperature control medium fluid for machine tools.

● SPECIAL FEATURES

1. No Fire Hazard

Precise Fluid 2001 is water-based and does not have a flash point, which means it is classified as a non-hazardous material under fire safety regulations in Japan. Whether at the start of the workday or during unmanned nighttime operations, machine tools may automatically heat and cool. With **Precise Fluid 2001**, there is no concern for fire, allowing for its safe use in both fully operational large-scale factories and advanced unmanned facilities.

2. Superior Heat Transfer Properties

Precise Fluid 2001, being water-based, boasts approximately twice the specific heat capacity and five times the thermal conductivity (which equates to about 3.8 times the heat transfer coefficient) compared to traditional mineral oil-based heat transfer fluids. These superior heating and cooling properties allow for a reduction in warm-up times and help maintain consistently high machining precision in machine tools, thereby facilitating the production of high-value-added products.

3. Excellent Corrosion and Rust Prevention

When water alone is used as a heating and cooling medium fluid, corrosion can cause problems such as worsened thermal conductivity and clogged pipes. But thanks to its carefully selected corrosion inhibitors, **Precise Fluid 2001** prevents corrosion of iron- and copper-based metals. It also contains vapor-phase rust inhibitors that prevent rust on tank ceilings and inside pipes of machine tools during storage.

4. Excellent Lubricity

A heating and cooling medium fluid requires a certain level of viscosity and antiwear properties so that it can be efficiently circulated and prevent abnormal wear of the pumps. **Precise Fluid 2001** has an appropriate viscosity and contains antiwear agents, so it exhibits excellent lubricity.

● FLUID MANAGEMENT DURING USE

Precise Fluid 2001 is water-based and may evaporate over time, which could potentially lead to an increase in viscosity. Furthermore, the depletion of vapor-phase rust inhibitors may cause corrosion and rust issues. Consequently, diligent management of the fluid is very important for the safe operation of equipment.

MANAGEMENT STANDARDS

Kinematic viscosity (40°C)	mm ² /s	3 max.
pH		8.5 min.

● CONTAINERS

200-liter drum and 20-liter can

● **TYPICAL PROPERTIES of Precise Fluid 2001**

Appearance			Transparent blue
Density	(15°C)	g/cm ³	1.007
Kinematic viscosity	(40°C)	mm ² /s	2.02
pH			9.6
Foaming	(24°C)	ml	12
Metal corrosion	(88°C, 336 h)		
	Cast aluminum	mass decrease, mg/cm ²	-0.25
	Cast iron	mass decrease, mg/cm ²	0.05
	Steel	mass decrease, mg/cm ²	0.00
	Brass	mass decrease, mg/cm ²	-0.06
	Solder	mass decrease, mg/cm ²	0.15
	Copper	mass decrease, mg/cm ²	-0.03
	pH change after test		-0.3

Note: The typical properties may be changed without notice. (May 2024)



Handling Precautions

▼ Follow these precautions when handling this product.

Composition :	Water, Morpholine, Glycerin ethoxylate and glycerin propoxylate, Additives
Hazard category:	Not applicable
Precautionary Statements:	<ul style="list-style-type: none"> Do not handle until all safety precautions have been read and understood. Wear protective gloves/protective clothing/eye protection/face protection. Do not allow the eyes to become exposed to the product. Do not swallow the product. Wash hands thoroughly after handling. Do not eat, drink or smoke when using this product.
Prevention	
Response	<ul style="list-style-type: none"> IF SWALLOWED: Immediately call a POISON CENTER/doctor. IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. If the eyes are exposed to the product: Rinse the eyes with plenty of running water and immediately contact a physician. IF ON SKIN: Wash with plenty of soap and water.
Storage	<ul style="list-style-type: none"> The product must be stored in a cool, well-ventilated location where it will not be exposed to direct sunlight. Containers that have been opened must be tightly sealed.
Disposal	<ul style="list-style-type: none"> Dispose of contents/container in accordance with local/regional/national/international regulations. If there are any doubts about proper methods of handling the product, contact the point of purchase before proceeding with usage.