

# RELIASOL S-PA(N)

## Micro emulsion type water soluble cutting fluid for nonferrous metals

**RELIASOL S-PA(N)** is a water-soluble cutting fluid suitable for reaming and tapping which require finished surface accuracy of aluminum alloy. Since **RELIASOL S-PA(N)** contains a high functional surfactant, it reduces stickiness and spoilage of water-soluble cutting oil. Therefore it is possible to use it for a long time. **RELIASOL S-PA(N)** is an environmentally friendly oil, which is not subjected to PRTR law, because sulfur, phosphorus and chlorine type extreme pressure agents are not included. **RELIASOL S-PA(N)** is also a human-friendly product that does not contain chemical substances such as dicyclohexylamine and morpholine, which are subject to the "Poisonous and Deleterious Substances Control Law". In addition, hard water can be used for dilution of **RELIASOL S-PA(N)**. **RELIASOL S-PA(N)** is a micro emulsion type and it corresponds to JIS K 2241 A 2 type 2.

### ● Special Features

#### 1. Excellent cutting performance

**RELIASOL S-PA(N)** has good cutting characteristics because it contains excellent lubricity improver. In particular, it demonstrates excellent cutting performance with reaming and tapping which require finished surface roughness of aluminum alloy.

#### 2. Superior decay resistance and prevention of stickiness

**RELIASOL S-PA(N)** is excellent in prevention of sticking of cutting fluid and resistance to decay, because it is formulated with high functional surfactant. Thus it can be used for a long time.

The diluent of **RELIASOL S-PA(N)** can also be used in a centralized coolant supplying device.

#### 3. Excellent rust prevention

Since **RELIASOL S-PA(N)** is oil that processes steel materials such as castings, it contains additives with excellent corrosion resistance.

#### 4. High human safety

**RELIASOL S-PA(N)** does not contain sulfur, phosphorus and chlorine type extreme pressure agent, and it is an environmentally friendly product that is not applicable to PRTR law. **RELIASOL S-PA(N)** is also a human-friendly product that does not contain chemical substances such as dicyclohexylamine and morpholine, which are subject to the "Poisonous and Deleterious Substances Control Law".

#### 5. Outstanding Foaming Prevention

**RELIASOL S-PA(N)** is excellent in antifoaming properties, and diluted solution can be used in high-pressure coolant up to 7 MPa.

### ● Applications

Various processing of aluminum alloy and steel materials such as carbon steel and cast iron, and machining using a machining center

### ● Dilution Rate During Use

Cutting of aluminum alloy and steel materials:  
10 to 30 times

\*The dilution ratio is adjusted according to the work material and processing conditions.

### ● Packaging

200-liter drum and 20-liter can

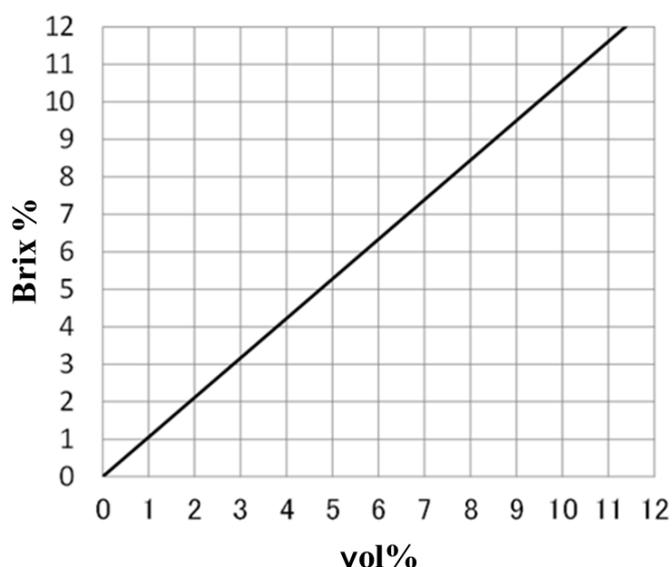
### ● Typical Properties of RELIASOL S-PA(N)

Appearance	(original fluid)	Light yellow~ Brown
	(diluted fluid)	White emulsion
Density (15°C), g/cm <sup>3</sup>		0.94
Surface tension* (25°C), mNm		33
pH *		9.3
Anticorrosion test(RT,48h)*		
Steel sheet		No discoloration
Aluminum sheet		No discoloration
Copper sheet		No discoloration
Foaming* (24°C), ml		1

\*Measured with 30x diluted fluid

Note: The typical properties may be changed without notice. (December 2018).

**Concentration Conversion Graph for RELIASOL S-PA(N)**  
(Atago Digital Refractometer PR-101)



## Handling Precautions

▼ Follow these precautions when handling this product.

<b>Composition :</b>	Water-soluble processing oil; Mixture(Base Oil, Water, Additives)
<b>Precautionary pictograms:</b>	
<b>Signal word:</b>	Warning
<b>Hazard Statement:</b>	May cause allergic skin reaction
<b>Precautionary Statements:</b>	<ul style="list-style-type: none"> <li>• Do not handle until all safety precautions have been read and understood.</li> <li>• Wear protective gloves/protective clothing/eye protection/face protection.</li> <li>• Do not allow the eyes to become exposed to the product. Do not swallow the product.</li> <li>• Contaminated work clothing should not be allowed out of the workplace.</li> <li>• Avoid breathing dust/fume/gas/mist/vapours/spray.</li> <li>• Wash hands thoroughly after handling.</li> <li>• Do not eat, drink or smoke when using this product.</li> </ul>
<b>Prevention</b>	
<b>Response</b>	<ul style="list-style-type: none"> <li>• IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.</li> <li>• IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.</li> <li>• If the eyes are exposed to the product: Rinse the eyes with plenty of running water and immediately contact a physician.</li> <li>• IF ON SKIN: Wash with plenty of soap and water.</li> <li>• Take off contaminated clothing and wash before reuse.</li> <li>• If skin irritation or a rash occurs: Get medical advice/attention.</li> </ul>
<b>Storage</b>	<ul style="list-style-type: none"> <li>• The product must be stored in a cool, well-ventilated location where it will not be exposed to direct sunlight.</li> <li>• Containers that have been opened must be tightly sealed.</li> </ul>
<b>Disposal</b>	<ul style="list-style-type: none"> <li>• Dispose of contents/container in accordance with local/regional/national/international regulations.</li> <li>• If there are any doubts about proper methods of handling the product, contact the point of purchase before proceeding with usage.</li> </ul>