

Improved Seal Paste

1. Introduction

When seal paste is applied to gaskets, the scratches in flanges are filled with the paste, improving the sealing properties. Therefore, seal paste has long been used for gasket connection.

Although there are no problems with the conventional seal paste, user demands for safety and the environment are getting stronger, so we developed an improved seal paste.

2. Product summary

The improved seal paste is a light brown paste based on a special, non-drying, oil-based bond formulated with inorganic filler and a small amount of solvent. The formulation is an improvement over the conventional seal paste, as it contains no carcinogenic substances. In addition, it is categorized as a non-hazardous material under the Fire Service Act. Thus, the product is safer and more environment-friendly.



Figure 1 Improved seal paste

3. Characteristics

- ① The product does not contain crystalline silica, which is carcinogenic, nor organic solvent including highly hazardous dichloromethane and toluene. The product is safe and environment-friendly.
- ② Since the product contains a solvent with a high flash point, it is categorized as a non-hazardous material (combustible solids under the designated combustibles*).
- ③ The new product has similar properties to the conventional seal paste. When applied to gaskets, it works as a sealing adjunct, protects the flanges from rusting, and prevents gaskets from adhering to the flanges.
- ④ A brush is attached to the cap, making it easy to apply to gaskets and other objects.

Note: Combustible solids under the designated combustibles: Products whose speed of combustion expansion is fast in the case of fire, or whose combustion is difficult to suppress. Petroleum asphalt and some other products fall into this category. When the amount of such a product exceeds a designated amount (3,000 kg), it is categorized as a combustible solid under the designated combustibles; when used or stored in amounts lower than 3,000 kg, it is categorized as a non-hazardous material.

4. Applicable fluid

The improved seal paste is applicable to water, air, gasoline, kerosene, lubricating oil, natural gas, LPG, cold water, and hydrogen sulfide. The paste can be used when hydrocarbons including ethylene, butane, and ethane are handled, and helps prevent deposit corrosion on the surface of stainless-steel flanges.

5. Service temperature range

- 50 to 300°C

6. Product form

730 g of paste in a capped metal can with a brush

7. Performance data

These performance data demonstrate that the improved seal paste has properties equivalent to those of the conventional seal paste.

7-1) Test to check sealing properties at room temperature

To evaluate the sealing properties of each paste, various low contact pressures were applied to gaskets to which the improved seal paste or the conventional seal paste was applied. As a result, leakage from gaskets using the improved seal paste stopped at a contact pressure of 7.5 MPa, the same as leakage from gaskets using the conventional seal paste. This result demonstrates that the improved seal paste has properties equivalent to or better than those of the conventional seal paste.

Table1 Test conditions for checking the sealing properties at room temperature

Gasket	No.GF300
Gasket dimensions	JIS 10K 50A t=1.5mm
Fluid	Nitrogen gas, 3.5 MPa
Gasket stress	5、7.5MPa
Type of paste	Improved seal paste Conventional seal paste
Amount of paste applied	Approximately 0.7 g on both sides

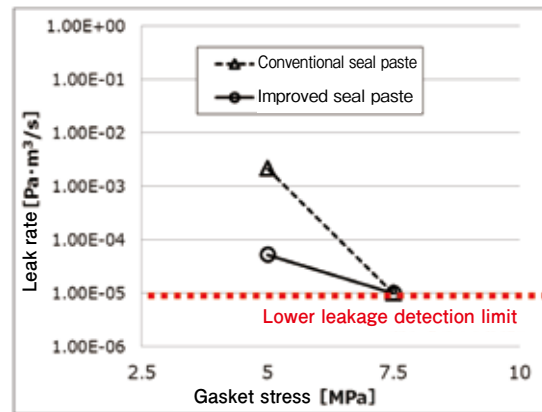


Figure2 Test results of checking the sealing properties at room temperature

Table2 Test conditions for checking compression fracture

Gasket	No.6500
Gasket dimensions	φ100×φ64 t=3mm
Gasket stress	70、100MPa
Amount of paste applied	Approximately 1.75 g on both sides

7-2) Test to check resistance to compression fracture

Contact pressures of 70 MPa and 100 MPa were applied to gaskets to which either the improved seal paste or the conventional seal paste was applied, to evaluate the contact pressure at which compression fracture occurs.

No abnormalities occurred at contact pressures of up to 70 MPa, neither with the improved seal paste nor with the conventional seal paste. Compression fracture occurred at a contact pressure of 100 MPa with both pastes, verifying that the two pastes have equivalent properties. Figures 3 and 4 show enlarged photos of



Figure 3 Compression-fracture test of conventional seal paste
Compression fracture was confirmed at 100 MPa.



Figure 4 Compression-fracture test of improved seal paste
Compression fracture was confirmed at 100 MPa.

gaskets which suffered compression fracture.

8. Conclusion

Since legal regulations on toxic substances and dangerous substances are becoming stricter due to social demands regarding safety and the environment, customers increasingly need products that meet such social requests. Accordingly, we will continue to develop safe and environment-friendly products for users.



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