

# Technical Data Sheet

Solutions for Decoration

## 87 4039 - Fixative

### Application

Onglaze decoration and glass:

In onglaze decoration, all slide-offs are bonded with the object being decorated by means of the gum (paper coating) which is also transferred. With sharp-fired objects the adhesive effect of the paper coating is completely sufficient to achieve a good bond between the glaze surface and the decal. The firing results based on this decorative technique, field-proven over many decades, are generally perfect. If decorations with very thickly printed decors (embossed decors) are to be applied, or if decals are to be processed on embossed objects, substantial firing defects such as pinholes or pitting often occur. In addition, glass decals for decorating sand-blasted or frosted glass usually have pinholes after firing. In these cases, the use of 87 4039 is recommended.

A thin film of 87 4039 is applied with a brush or sponge to the object to be decorated and the decal that has been removed in water is laid in the moist film of 87 4039. The water slime is removed with a squeegee, as is usual for ceramic decals.

After over-night drying, the object can be fired. Good results are obtained in most cases with this method.

Underglaze decoration with and without hardening on:

Whereas the use of 87 4039 for onglaze decorations is restricted to certain applications where the possibility of firing faults may occur, its use for underglaze decoration is absolutely necessary. Due to the comparatively rough surface of unglazed bone-china, vitro-porcelain or earthenware bisque, the adhesive effect of the paper coat of ceramic decals is not sufficient to achieve the bond required between the decal and the bisque surface. As a result, glaze and color crawls form during sharp firing unless 87 4039 is used. In order to prevent this from happening, the areas to be decorated are coated with 87 4039 in the same way as for onglaze slide-off processing. The decal removed in water is laid in the moist film immediately and the water slime removed with a plastic or rubber squeegee.

During the required 12-24 hours drying at room temperature the underside of the decal becomes very tacky due to the effect of 87 4039 and bonds firmly with the bisque surface. After drying, the object is pre-heated to 130-160 °C, spray-glazed and subsequently sharp-fired.

Over the last two decades millions of ceramic articles have been successfully decorated in this way using 87 4039. Due to its own high level of viscosity, 87 4039 is particularly suitable for decorating low porosity earthenware.

### Printing properties

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### Miscibility

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### Application errors

If the freshly decorated object is not dried for long enough, blistering may occur when it is pre-heated before glazing.

As blistering prevents the décor from bonding sufficiently with the bisque surface, color and glaze crawls will form.

### **Storage**

87 4039 should be stored in the drums in which it was originally supplied by FERRO in a dry place at room temperature (15-25 °C). Always seal opened drums carefully as the composition of the product changes when solvents evaporate from open drums.

When this storage recommendation is observed, the minimum shelf life in unopened original drums is 12 month.

### **Environment**

Waste material treatment, environmental health and safety protection has to follow the local regulations and legislation.

<b>Field of application</b>	bone-china, vitro bisque surfaces
<b>Processing</b>	brush or sponge; neoprene roller
<b>Appearance</b>	reddish, transparent liquid
<b>Composition</b>	cellulose derivatives, plasticizer, solvent, water
<b>Viscosity at 23°C [mPa*s]</b>	360 at 50 1/s ; 170 at 200 1/s
<b>Degree of thixotropy</b>	low
<b>Consistency</b>	flowing
<b>Density at 20 °C [g/cm³]</b>	0,97
<b>Non-Volatile parts (nvp) [%]</b>	1,1
<b>Flash point according to ISO 3680 [°C]</b>	100
<b>Recommended screen material</b>	- -
<b>Recommended pasting ratio</b>	- -
<b>Drying</b>	12-24 hours at room temp., not at temperatures over 35 °C
<b>Drying figures TZ according to Mettler</b>	TZ 10: ; TZ 100: not measured
<b>Recommended working temp. [°C]</b>	20 - 25
<b>Recommended rel. humidity [%]</b>	55 - 60
<b>Recommended Covercoats</b>	- -
<b>Thinner</b>	water up to 2 % maximum
<b>Cleaner</b>	water

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