



TECHNICAL DATA SHEET

SILICONE RESIN PR43/50

Description

Medium-hard methylphenyl silicone resin that is recommended as a binder for heat-resistant, anti-corrosive paints.

Applications

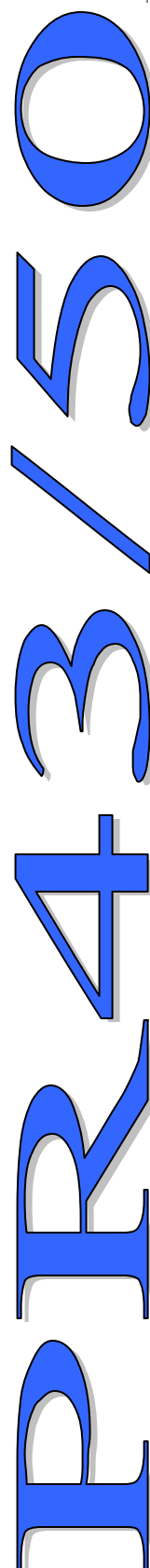
Production of heat-resistant, anti-corrosive paints.

Aluminium-pigmented coatings based on Silicone Resin PR43/50 meet the requirements of MIL-P-14276B as regards heat resistance and protection against corrosion at temperatures of up to 650°C. To stabilise the viscosity, we recommend adding 5% (based on PR43/50) butanol for all applications, particularly for Al paints.

Typical Properties

Appearance	Clear, colourless to light straw
Binder content	50 ± 1 %
Iodine colour scale	max 1
Specific gravity at 25°C	1.0 g/ml
Viscosity at 25°C	160 ± 25 mm ² /s
Flash point	25°C
Ignition temperature	485°C
Storage stability in closed original container	6 months

Silicone Resin PR43/50 is an ideal binder for producing black and aluminium-pigmented coatings with excellent heat resistance.



Processing Pigmentation

*For use at temperatures of up to 650°C:

In this case, only paints containing aluminium or micaceous iron ore pigmentation pigments can be used.

*For use at temperatures of up to 500°C:

Black paints with iron manganese oxides as pigments.

Paints containing fillers such as talc and mica in conjunction with heat-resistant coloured pigments.

*For use at temperatures of up to 400°C:

Paints containing heat-resistant coloured pigments and fillers such as talc, barytes, silica flour etc.

Pre-treatment Of Substrate And Paint Film Structure

Paints based on Silicone Resin PR43/50 show good adhesion to degreased, bare metal surfaces. Removal of rust by sandblasting is advisable where the surface is not completely bare.

The optimum wet film thickness for high-temperature-resistant, anti-corrosive finishes is usually about 50 µm. This thickness can usually be achieved in 2 applications. Normally, one-coat application is only recommended if the painted surface is exposed to mainly dry heat (eg, indoor application).

Storing conditions

Coatings based on Silicone Resin PR43/50 dry to form a tack-free finish at room temperature and will provide even at this stage very good protection against corrosion and weathering resistance. Complete curing and the development of optimum mechanical properties and chemical resistance, e.g. to oil and petrol, are achieved after stoving. To obtain tack-free coatings after stoving we would recommend the following stoving conditions for the uncatalysed, unpigmented resin solution:-

200°C approx. 1h

250°C approx 30 min

Diluents

Aromatics such as toluene and xylene	unlimited
Esters such as ethyl acetate, butyl acetate, ethyl glycol acetate	unlimited
Ketones such as methylethyl ketone and cyclohexanone	unlimited
Aliphatic hydrocarbons	limited
Alcohols such as methanol, ethanol and n-butanol	limited

Guide formulations

*Heat-resistant, semi-matt, black stoving finish

(Guide formulation)

57 pbw SILICONE RESIN PR43/50
16.6 pbw Fast Black 100²
11.4 pbw Talcum AT extra (2-8 um)³
5 pbw Bentone 34, Antiterra U, suspension
(0.5 Bentone 34, 0.25 Antiterra U, 4.25 xylene)⁴
2.5 pbw Butanol
6.5 pbw Xylene
100.0 pbw

Production

Thoroughly mix Bentone 34, butanol and xylene in a bead mill; add Silicone Resin PR43/50, Fast Black 100 and Talcum AT extra and mix at 4000 rpm for about 15 minutes.

Product Data

Solids content (1h/200°C) 57%
Viscosity (DIN cup 4/25°C) 29 s
Heat resistance up to about 400°C; for a short period of time up to 600°C

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Information given in this publication is based upon technical data gained in our own and other Laboratories and is believed to be true. However if the material is used in conditions beyond our control we can assume no liability for results obtained or damages incurred through the application of the data present herein.

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*Heat-resistant aluminium paint

48.8 pbw SILICONE RESIN PR43/50
31.7 pbw Stapa 2⁵
4.9 pbw Bentone 38 paste
(10 pbw Bentone 38 +
10 pbw Antiterra U +
80 pbw xylene)⁴
2.4 pbw butanol
12.2 pbw xylene
100.0 pbw

Production

Disperse all ingredients at 4000 rpm (shearing rate: approx 10m/sec). Adjust the viscosity by diluting the mixture with xylene.

Product data

Solids content (1 h/200°C)	43%
Viscosity (DIN cup 4/25°C)	45 sec
Heat resistance up to	600°C

Storage Stability

Silicone Resin PR43/50 has a shelf life of at least 6 months if stored in tightly closed original containers between 5°C and 30°C. The "Best use before end" date of each lot is shown on the product label.

If the material is kept beyond the recommended shelf life it is not necessarily unusable, but a quality control should be performed on the properties relevant to the application.

Safety Instructions

Comprehensive instructions are given in the corresponding Material Safety Data Sheets. They are available on request from Penn-White Limited.