BREOX SLF RANGE

BREOX SLF 174, SLF 154, SLF 140, SLF 27, SLF 178, SLF156, SLF 108, SLF 30 and SLF 115

INTRODUCTION

Breox SLF's are polyalkylene glycol based fluids specially designed to provide high performance in all solder levelling re-flow techniques. The product range consists of a range of viscosity grades and polymer types, inhibited or uninhibited to suit the broad scope of levelling methods and equipment.

APPLICATION

The range of products share a number of common advantages such as,

- Intermediate to high viscosity range
- Excellent water rinsability
- High flash point and high temperature stability
- Low foaming tendency
- Low degree of toxicity

Breox SLF 156 and **178** also exhibit ready biodegradability.

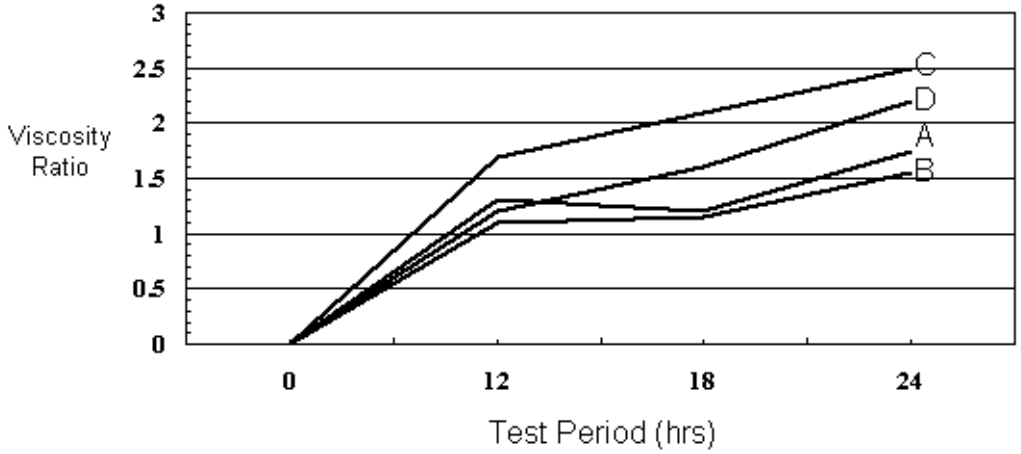
Included overleaf is a brief description of the relevant application for each of the inhibited products in the **Breox SLF RANGE**. The uninhibited base fluids for the four products are also available. They find application where inhibitors are not required or where the customer wishes to use their own inhibitor technology. The choice of product for a given application will depend on the desired features of the finished fluid (e.g. water content, finished fluid viscosity, additives etc.) and several products are normally evaluated to find the best fit for a particular system design.

SLF 156 & SLF 178	Both products contain inhibitors to promote good thermal stability at soldering temperatures and can be formulated with water, acids and other componentsfor preparation of water-based flux for hot air levelling. They are also suitable for dillution with alcohols such as isopropanol for preparation of IR levelling fluids. Residues after soldering can be easily removed due to the unique water soluble/dispersable inhibitor package. The products are also suitable for use undiluted in dip levelling techniques. Undiluted they can also be used as solder blanking agents to minimise the surface oxidation of molten solder. Both fluids have highly biodegradable base fluids making them more environmentally acceptable.
SLF 30	This product contains additives to enhance thermal stability, solder adhesion and rinsability. Homogenous blends with water or alcohol can be prepared for IR levelling. The product has been extensively used undiluted for dip levelling techniques.
SLF 108	A purposely-designed solder flux concentrate for use in hot air levelling machines. The product consists of a polyalkylene glycol, including additives designed to maximise its' effectiveness in the finished solder flux.

Breox SLF 115

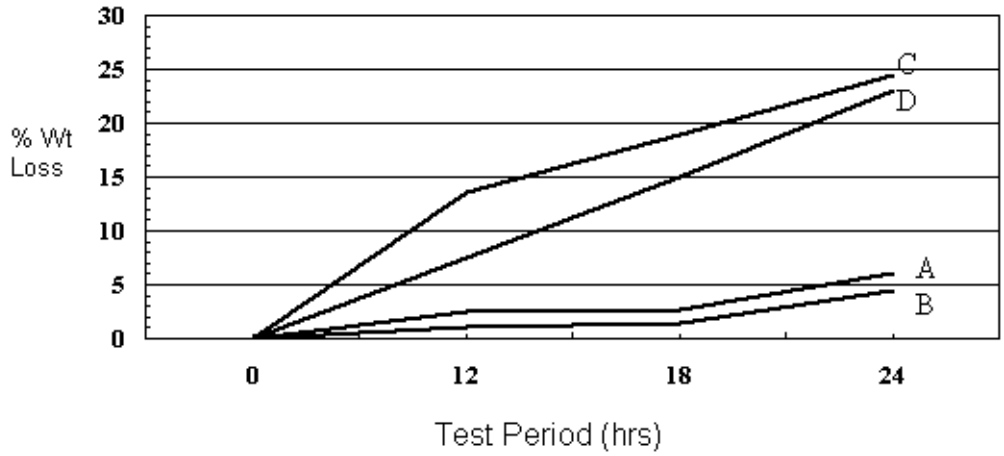
Breox SLF 115 is a recently developed, high temperature polyalkylene glycol base fluid, designed to offer superior resistance to degradation under oxidising conditions and is particularly suited to applications where oxidative stability and low volatility is required. Oxidative stability may be further enhanced where required, by the addition of a suitable antioxidant. Typical IP48 oxidation test data (200°C) is included below:

EXTENDED IP48 OXIDATION TEST – VISCOSITY RATIO



A - Breox SLF 115
B - SLF 115 + suitable antioxidant
C - High performance PAG base fluid for high temperature oxidative conditions.
D - High performance PAG base fluid for high temperature oxidative conditions + suitable antioxidant

EXTENDED IP48 OXIDATION TEST – EVAPORATIVE LOSS



A - Breox SLF 115
B - SLF 115 + suitable antioxidant
C - High performance PAG base fluid for high temperature oxidative conditions.
D - High performance PAG base fluid for high temperature oxidative conditions + suitable antioxidant

TYPICAL PHYSICAL PROPERTIES

The typical values presented here are believed to be accurate, they should not however be considered to constitute a specification.

Physical Attribute	Analysis Method	Value								
		SLF 174	**SLF 178**	**SLF 154**	**SLF 156**	**SLF 140**	**SLF 108**	**SLF 27**	**SLF 30**	**SLF 115**
Viscosity @40°C (cSt)	ASTM D445	100	100	125	125	140	140	270	270	300
Density @20°C (kgm^{-3})	ASTM D1298	1.13	1.13	1.13	1.13	1.05	1.05	1.09	1.09	1.13
Flash Point (°C)	ASTM D92	220	280	220	280	240	290	210	260	>200
Water Cont. (%max)	ASTM D1744	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Pour Point (°C)	ASTM D97	-20	-20	-4	-4	-37	-37	0	0	<-20
pH	(10% aq sol)	6.5	6.5	5	6	6	8.6	5.5	5.5	6

Breox SLF 154 and **SLF 174** have also found application as textile lubricants and paper sizing agents.

Remarks

Handling & Safety: A material Safety Data Sheet (MSDS) has been issued describing the health, safety and environmental characteristics of the BREOX SLF RANGE of products together with handling precautions and emergency procedures. This must be

consulted and fully understood before storage, handling and use.

Storage:

Revision-No. 1.4-08.2004 Effective August 18, 2004

The product can be stored for at least 2 years at ambient storage conditions and temperature without any deterioration.

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