

Report on miscibility tests

Introduction

Laboratory tests carried out at A&A Fratelli Parodi Spa have shown an excellent miscibility of Paryol ELECTRA 7426® with mineral-based dielectric fluids.

Demulsivity test

Paryol ELECTRA 7426® was subjected to demulsivity test according to ASTM D1401, at a temperature of 54 °C. Already after 10 minutes the oil separated completely from the water. The test result is: (40/40/0).

Foam test

Paryol ELECTRA 7426® was subjected to a foam test in 3 cycles as required by ASTM D892. The test results are listed in Table 1 below:

CYCLE	TEMPERATURE [°C]	FLOW [ml/min]	AERATION TIME [min]	FOAM VOLUME [ml]	FOAM PERMANENCE [sec]
1	24	100	10	< 5	< 5
2	93.5	100	10	< 5	< 5
3	24, after stress @ 93.5	100	10	< 5	< 5

Table 1: conditions and results of Foam test conducted on pure Paryol ELECTRA 7426®

RPVOT oxidation test

The test was performed according to ASTM D2112 on Paryol ELECTRA 7426® at different temperatures and the results are: 105 min @140 °C, 300 min @120 °C, 600 min @110 °C.

Refractive index

The refractive index n_D is a characteristic for each product and varies with the presence of contaminants and with degradation. Paryol ELECTRA 7426® has $n_D = 1.471$, while mineral oil has $n_D = 1.480$



The outcome of the foam test shows that Paryol ELECTRA 7426® is an oil that does not foam.

In the event of reconditioning (e.g. during retrofilling, see TG1) foam forming would pose no problem.

Paryol ELECTRA 7426® - mineral oil mixtures: tests at boundaries

Demulsivity, foam and RPVOT tests were also carried out on two mixed samples: 10% mineral oil in Paryol ELECTRA 7426® simulating a rough retrofilling from mineral to natural oil, the second 10% Paryol ELECTRA 7426® in mineral oil, simulating the reverse retrofilling:

- 10% mineral oil in Paryol ELECTRA 7426®**
 The first test showed that the contamination of Paryol ELECTRA 7426® by mineral oil didn't change the results of the above mentioned tests. The mixture had $n_D = 1.472$
- 10% Paryol ELECTRA 7426® in mineral oil**
 The second test showed that in turn the presence of 10% Paryol ELECTRA 7426® in mineral oil did not modify to a significant extent the properties of mineral oil itself.

CYCLE	TEMPERATURE [°C]	FLOW [ml/min]	AERATION TIME [min]	FOAM VOLUME [ml]	FOAM PERMANENCE [sec]
1	24	100	10	40	20
2	93.5	100	10	35	18
3	24, after stress @ 93.5	100	10	70	34

Table 1: conditions and results of Foam test conducted on 10% Paryol ELECTRA 7426® in mineral oil

While demulsivity also did not change, RPVOT tests showed a slight change, reflecting the difference in oxidation resistance imparted by Paryol ELECTRA 7426®: 125 min @140 °C vs. 130 min @140 °C of pure mineral oil. The mixture had $n_D = 1.477$

No miscibility with silicone oils

Miscibility tests performed on Paryol ELECTRA 7426® and silicone oils showed that the two substances are not miscible.

Disclaimer

This document applies as a general guidance and does not convey safety informations. Refer to original manufacturer's operation and maintenance guides appropriate for each transformer before beginning any operation.

All applicable safety codes and procedures must be followed.

A&A Fratelli Parodi Spa shall not be held liable for any damage or injury resulting from incorrect performing of the procedure reported therein.



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CERTIFICATE N.25334

UNI EN ISO 9001:2008 and UNI EN ISO 14001:2004 certified

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