Nonionic Soil Release Polyester for liquid and paste detergents and cleaners

**Composition**

<table>
<thead>
<tr>
<th>TexCare® SRN 240</th>
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<tr>
<td>active matter</td>
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<tr>
<td>remainder</td>
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**Physical properties**

TexCare SRN® 240 is the 40 % active aqueous preparation of a water-dispersible nonionic soil release polyester.

It was developed especially for the application in liquid detergents and cleaners.

**Properties**

<table>
<thead>
<tr>
<th>TexCare® SRN 240</th>
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<tr>
<td>appearance (25 °C)</td>
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<tr>
<td>colour</td>
</tr>
<tr>
<td>odour</td>
</tr>
<tr>
<td>pH value (1 % as is, 20 °C)</td>
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<tr>
<td>viscosity [mPas]</td>
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<tr>
<td>(Brookfield, LV, 25 °C, sp. 2, 60 rpm)</td>
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**Performance properties**

**Soil release effect**

Fabrics made of polyester and polyester/cotton are difficult to clean when they are soiled with oily or fatty stains. Such stains adhere strongly to the
hydrophobic synthetic fibres, which are also not wetted easily by the washing liquor.

If these fabrics are washed with a detergent containing TexCare® SRN 240, the soil release polyester is adsorbed on the hydrophobic fibres and forms a hydrophilic film.

This prevents the soil from adhering directly to the fibres. Furthermore, the affinity of hydrophobic soils for the hydrophilic film is reduced significantly compared to the untreated fibres.

This makes it much easier to remove oily stains from the fabric during subsequent washing.

The soil release effect was tested on polyester/cotton using the Dirty motor oil test.

Polyester / cotton swatches WFK 20 A were pre-washed, adding from 0.5 % to 3.0 % TexCare® SRN 240 to two different commercial detergents, a heavy duty liquid and a detergent for fine fabrics.

After soiling with dirty motor oil and storing for 1 hour the test swatches were washed again, but without adding TexCare® SRN 240. The remission was then compared to test swatches prewashed without TexCare® SRN 240.

The lines in Fig. 1 show the increase in remission depending on the concentration of TexCare® SRN 240 in the two test detergents used.

Increase in remission [%] versus detergent without SRP

TexCare® SRN 240 [% active] in two liquid detergents

Fig.1
Improvement of the soil removal using TexCare® SRN 240 on polyester/cotton WFK 20 A.
Dirty motor oil, Linitest, 40 °C, 30 min., 6 g/L detergent.
A significant improvement in soil removal is found in combination with both detergents beginning with 0.5 % TexCare® SRN 240 with just one prewash. This means that the hydrophilic protection film formed leads to a good removal of oily and fatty soil even if TexCare® SRN 240 is not used in the wash after the soiling. Concentrations of 1 % to 2 % TexCare® SRN 240 in the detergent are recommended.

Normally it is expected that a detergent with soil release polymer will be used several times for the same laundry until the pack is empty. Therefore the laundry is washed repeatedly with soil release polymer. This enables the temporary protection film to be renewed during each wash.

The multiple wash was used to test the improved detergency as described below.

**Improvement of detergency**

A further benefit of TexCare® SRN 240 is the significant improvement of the detergency. Even without a first "pre-wash" of the fabric to give it a TexCare® SRN 240 finish, soil is removed better from polyester and polyester/cotton.

This was tested with soiled polyester/cotton swatches WFK 20 C (standard soil) and WFK 20 D (synthetic sebum) which were washed four times at 40 °C with the liquid detergent for fine fabrics containing 1 % TexCare® SRN 240 (active matter). After each wash the remission was measured.

Fig. 2 shows the increase in remission of the test fabrics achieved by adding TexCare® SRN 240. The results for detergent without additive are shown for comparison.

![Improvement of detergency](Fig. 2)

**Fig. 2**
Improvement of detergency of a liquid detergent for fine fabrics with TexCare® SRN 240. Soiled polyester/cotton swatches, washed 1-4 times, Linitest, 40 °C, 30 min., 6 g/L detergent with and without 1 % TexCare® SRN 240 (active matter).
Application information

TexCare® SRN 240 was developed especially for application in liquid detergents and cleaners that are used to clean hydrophobic surfaces e.g. polyester fibres.

Recommended applications

The aqueous soil release polymer preparation TexCare® SRN 240 can be incorporated into liquid detergents and cleaners for household and I & I products.

In addition, TexCare® SRN 240 may be applied in liquid hard surface cleaners.

Examples of application

Liquid formulations:
- Heavy duty detergents
- Detergents for fine fabrics
- Detergents for coloured fabrics
- Detergents for curtains
- Washing pastes
- All-purpose cleaners

Storage

TexCare® SRN 240 can be stored for at least to 1 year in original sealed containers at room temperature under the recommended conditions.

Protect from exposure to cold during transport and storage. The properties of TexCare® SRN 240 are reversibly altered by exposure to cold. If TexCare® SRN 240 becomes turbid, thickens or freezes through exposure to cold, thaw slowly at room temperature and afterwards stir briefly.