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At DyStar, our products and services help customers worldwide reduce costs, shorten lead times and meet stringent quality and ecological specifications.

Dianix® Dry Dyes
Water-free polyester dyeing with supercritical carbon dioxide

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1. Introduction
Dyeing with supercritical carbon dioxide (CO₂ dyeing) is a water-free coloration method. The increasing worldwide demand for textiles which are produced with minimal impact on the environment led to commercialization of this dyeing method. Next to the machinery manufacturer, the introduction of CO₂ dyeing to the textile industry is driven and accelerated by retailers & brands.

2. Dye selection
The dissolving capacity of supercritical carbon dioxide corresponds to that of the less polar organic solvents. The suitability of disperse dyes for dyeing with supercritical CO₂ is depending on following parameters:

- Solubility in CO₂
- Solubility speed
- Saturation in CO₂
- Diffusion speed

Since impurities are unfavorable for the dyeing process with supercritical CO₂, purified disperse dyes have to be used.

2.1 Dianix® Dry selection for highest levels of wet-fastness

It is recommended to use Dianix Dry Orange XF2 as shading dye with a maximum concentration of 0.5%.

3. Build-up properties of Dianix® Dry dyes on polyester knitted fabric (75D72F)

4. Fastness properties of Dianix Dry dyes on polyester knitted fabric (75D72F)