

COMPARISON WITH LEADING COMPETITOR PRODUCT

Terminox® Supreme is 20% stronger than the leading competitor's bleach clean-up product from pH 6-9 across temperatures from 30-60°C. Terminox®

Supreme has a broad temperature and pH optimum spanning across this full range - making it ideal for use in the dyebath.

■ Terminox® Supreme 100% dosage ■ Terminox® Supreme 80% dosage ■ Leading competitor product 100% dosage

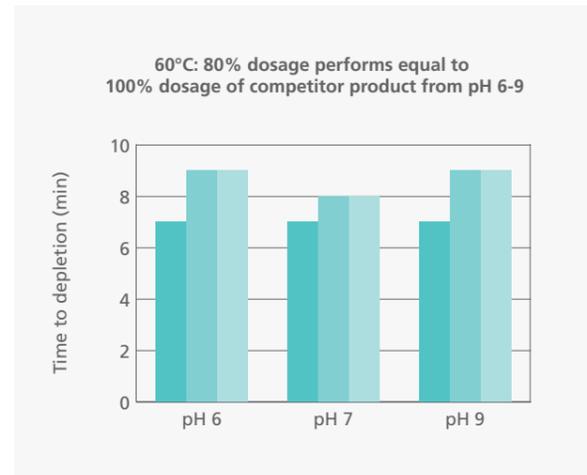
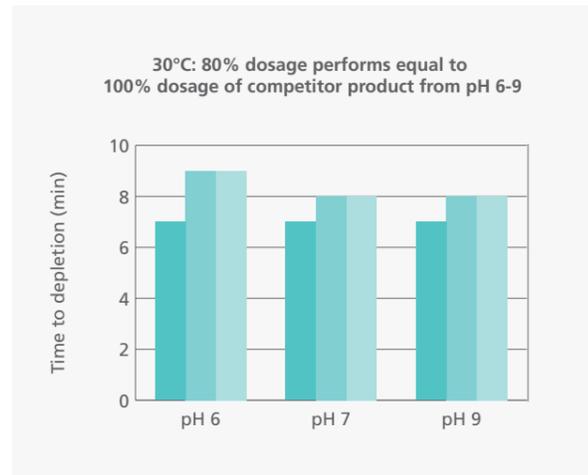


Fig. 4: Comparison of Terminox® Supreme and leading competitor product, 350 ppm residual H₂O₂, based on 3% formulation and 0.6 g/l dosage

Fig. 5: Comparison of Terminox® Supreme and leading competitor product, 350 ppm residual H₂O₂, based on 3% formulation and 0.6 g/l dosage

Testing: Comparative testing of enzymatic bleach clean-up is easily done in the laboratory. Novozymes will share information on how to do comparative trials relative to industry norms upon request.

EFFICIENT BLEACH CLEAN-UP WITH NOVOZYMES TERMINOX® SUPREME

To obtain a superior result, the best preparation is needed. This universal rule also applies to textile dyeing. In order to get consistent batch-to-batch dyeing reproducibility, it is essential to have the same starting point. This is achieved by bleaching the fabric in advance, and equally important, by removing all

residual hydrogen peroxide in a bleach clean-up process. Terminox® Supreme ensures consistent bleach clean-up while requiring far less water and energy than conventional methods, such as reducing agents or rinsing with vast amounts of water.



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Novozymes is the world leader in bioinnovation. Together with customers across a broad array of industries we create tomorrow's industrial biosolutions, improving our customers' business and the use of our planet's resources.

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THE BENEFITS OF USING TERMINOX® SUPREME

- Batch-to-batch consistency
- Lower water consumption
- Lower energy usage
- Reduced effluent output
- Higher production throughput
- Safe dyeing
- An environmentally friendly solution

THE BEST OFFERING IN THE MARKET PLACE FOR BLEACH CLEAN-UP

The most optimal way to remove residual peroxide is to apply Terminox® Supreme in the dye bath whilst setting the pH between 6-7 and temperature at or below 60°C.

Terminox® Supreme consistently gives you the best performance compared to any other competitor products in the market under the conditions you meet

in the mills. Terminox® Supreme is 20% stronger than the leading competitor product at peroxide levels of 500 ppm and below. In a textile mill the concentration of residual peroxide will be below 300 ppm H₂O₂ in subsequent baths after bleaching.

EASY, FAST AND SUSTAINABLE REMOVAL OF RESIDUAL HYDROGEN PEROXIDE

As water is becoming a scarce resource, the textile industry is faced with the challenge of reducing water consumption. Traditional bleach clean-up processes with water or reducing agent use large amounts of water for rinsing and lots of energy for heating and pumping the water. Terminox® Supreme simply splits H₂O₂ into H₂O and O₂ and makes further rinses unnecessary before dyeing. In fact, 20,000 liters of water are saved per ton of textile and the process time is reduced > 50% from 50-60 min to 20-30 min.

QUALITY – THE NOVOZYMES WAY



Terminox® Supreme for bleach clean-up will allow mills to perform best in class bleach clean-up before or in the dyebath.

Working with Novozymes means working with the leading provider of bioinnovation, with more than 60 years of experience in textile enzymes. Novozymes is synonymous with stable products, steady supply, safety, and technical support.

COMPARISON OF BLEACH CLEAN-UP METHODS

Bleach clean-up with water alone takes a lot of time, waste resources, and risk that the residual H₂O₂ will affect the color shade.

Bleach clean-up with sodium thiosulphate requires at least one extra rinse to remove the residual reducing agent. Failure to do so, will result in poor shade reproducibility as the reducing agent and reactants will have a negative effect on dyes.

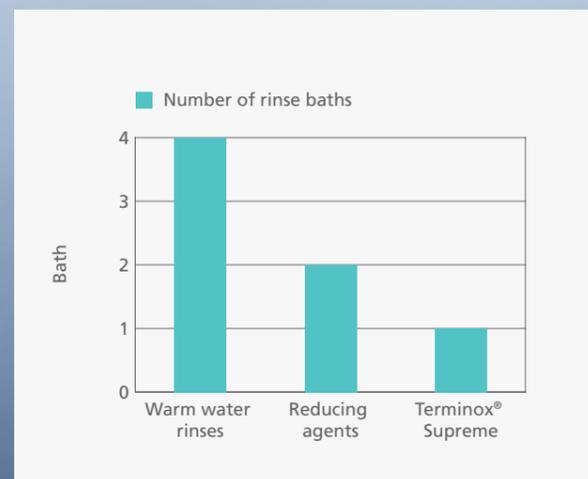


Fig. 1: Water usage in various bleach clean-up methods

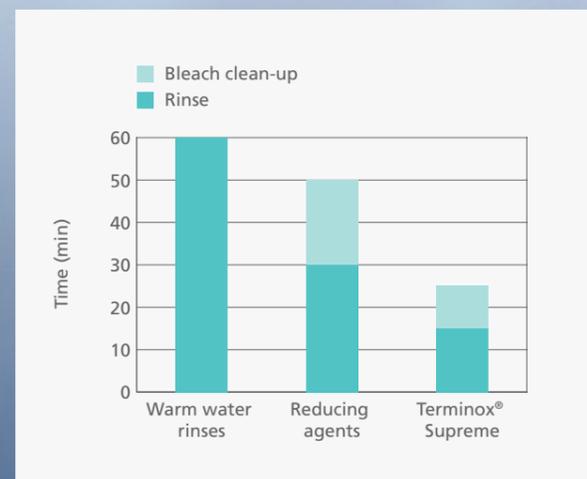


Fig. 2: Rinsing and bleach clean-up time for various methods

TERMINOX TREATED	REDUCING AGENT	H ₂ O ₂
The targeted color is always obtained when using Terminox® Supreme, as the enzyme completely removes any residual hydrogen peroxide and the enzyme does not react with dyes	A change in color may occur when residual reducing agents are not properly removed, as any remaining reducing agents will react with dyes	A change in color may occur when residual hydrogen peroxide is not removed, as any remaining hydrogen peroxide will react with dyes

Fig. 3: Enzymatic bleach clean-up with Terminox® Supreme ensures dyeing consistency