



Easy Clean Coating ECC-4000

For Ceramic Substrates

Introduction 3M™ Easy Clean Coating ECC-4000 is an air-dried, clear, colorless treatment for ceramic sanitary fixtures, used to provide “Easy to Clean” surfaces. This fluoropolymer will react with the surface to create a low surface energy coating that is not easily wetted-out with liquids. The treatment is stable and cannot be removed except by harsh cleaners or reagents, such as a very strong base.

ECC-4000 coating is typically applied from a very diluted solution containing about 0.1% by weight of product, resulting in a coating thickness of 20 to 100 nm. ECC-4000 coating can be applied by spray application or dip coating. The treatment provides a hydrophobic surface that allows simple rinsing away of soils and sludge from the surface with no residual surface staining. The treated surface is durable, highly repellent to oils and water and does not change surface appearance.

Application ECC-4000 coating can be applied to ceramic surfaces at room temperature to provide low energy coatings.

The treated substrate will have:

- 1. Surface protection** ECC-4000 coating can be used for ceramic materials such as sinks, toilets, tiles (not floor tiles), showers tubs and other sanitary fixtures
- 2. Oil- and water-repellency** This material can be used to obtain repellency against any liquid having a surface tension greater than about 15 mN/m. This includes water, oils, ketones, gasoline and aromatic and aliphatic hydrocarbons.
- 3. Easy-to-clean properties** ECC 4000 coating is a built-in manufacturer applied treatment providing an easy to clean surface, resulting in consumer advantages such as.
 - preventing stains
 - easy to remove hard water deposits
 - no need for aggressive cleanersNote: “Easy-to-Clean” does not mean the surface is self-cleaning
- 4. Enhanced lubricity** Soils and liquids tend to “slide off” surfaces treated with ECC-4000 coating, helping to prevent build-up and extend the time between cleanings.

3M™ Easy Clean Coating ECC-4000 Typical Physical Properties

Not for specification
purposes

All values determined at
25°C and 1 atmosphere
unless otherwise
specified

ECC-4000 coating can be described as a fluoropolymer solution.

Properties	ECC-4000 Coating
Appearance	Slightly yellow liquid
Specific gravity	0.92 kg/l
Flash point	12°C (54°F)
Type	non-ionic
Composition	10% fluoropolymer 60% alkoxy silane 30% ethanol

ECC-4000 coating can be diluted with alcohols, ketones, acetates or other solvents to give slightly hazy mixtures.

ECC-4000 can be diluted with hydrofluoroethers (HFE) to give clear solutions.

Instructions for proper product application can be found in the Application Guideline.

Typical Test Data	ECC-4000 Coating
Initial contact angles (water/hexadecane)	95°-110°/60°-65°
Contact angles after abrasion 50,000 cycles with WC-eend * cleaner	80°-95°/45°-50°
40 cycles with Cif**	70°-80°/40°-45°
Contact angles after exposure 24 hrs 18% HCl at 20°C	90°-95°/50°-55°
1 hr boiling water	90°-95°/50°-55°

* "WC-eend cleaner" is a trademark of Bolton Group

** "Cif" is a trademark of Lever Fabergé

Storage and Shelf Life

It is recommended that ECC-4000 coating be stored in a closed bottle, away from direct sunlight, in a cool, dry place (temperatures between 10-25°C/50°-77°F). Avoid contact with moisture. Shelf life is 1 year from date of manufacturing.

Product Safety and Handling

Before using this product, please read the Material Safety Data Sheet (available through your local 3M representative) and the precautionary statement on our product packaging. Follow all applicable directions.

Appropriate care should be taken to avoid skin or eye contact and prolonged breathing of vapors. Hands should be washed before eating. Smoking should be avoided.

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