

Casein Primer

Technical Data Sheet

Date: 16 Oct 2026

1. General Description

Casein Primer is a 100% natural, mineral-based bonding primer formulated specifically to prepare substrates for breathable lime and mineral finishes. Consisting of a precise blend of natural casein protein, lime, and calcium carbonate fillers, it establishes a high-affinity porous foundation that anchors subsequent coats without synthetic resins or acrylic polymers.

Chemical Transformation: When the casein powder is mixed with water and activated with lime, the casein and lime chemically react to form **calcium caseinate** (a natural glue). This transformation converts the raw protein into a completely new, highly durable water-resistant binder matrix.

2. Main Uses

Primary function:

Substrate Preparation: Applied prior to Cloudlime limewash or other mineral coatings to regulate suction and ensure optimal mechanical adhesion.

Surface Conditioning: Suitable for interior and exterior sheltered applications over absorbent, slightly absorbent, and non-absorbent surfaces (when primed accordingly).

3. Characteristics

Finish: Matte, highly porous texture.

Binder: Calcium caseinate (formed via the reaction of natural milk protein and lime) combined with calcium carbonate.

Breathability: Highly vapor-permeable; does not form a plastic film or trap moisture within the substrate.

VOC Content: Zero-VOC, odourless, and free from synthetic solvents or plasticizers.

Eco-Friendly: Biodegradable and safe for sensitive indoor environments.

Pot Life: 24 hours once mixed with water.

4. Recommended painting system

Casein Primer is the first part of a integrated 2-step finishing system. Refer to the substrate preparation guidelines below:

Type	Examples	Recommended System
Non-absorbent surfaces	Laminates, metal, glass, tiles, plastics (e.g. PVC pipes), gloss epoxy/oil-based paint	<i>Suitable primer (for water-based emulsion paint)¹</i> + 2 coats of Casein Primer + Cloudlime
Slightly absorbent surfaces	Matt water-based acrylic-emulsion based paint, water-based acrylic-emulsion based primer, plasterboard	2 coats of Casein Primer + Cloudlime
Absorbent surfaces	Cement or lime screed/plaster, gypsum plaster, raw brick wall	2 coats of Casein Primer (optional, but recommended to regulate absorption) + Cloudlime
Absorbent surfaces	Raw timber/plywood	<i>Water-based tannin-blocking primer²</i> + 2 coats of Casein Primer + Cloudlime

¹ This is an additional primer, to be sourced with consideration to original substrate. For example, painting limewash over an existing surface previously painted with oil-based paint, requires a layering system something similar to an oil-based sealer + water-based primer + Casein Primer + Cloudlime

² To stop the yellow tannin in wood from surfacing, we need a suitable primer to block it.

5. Application Procedures

Site Protection: Mask and cover all surrounding surfaces— using plastic drop sheets before commencing. Lime-based products can cause permanent staining or etching on natural stone and wood. Immediately remove any accidental splatters with a damp cloth before they dry.

Surface Preparation: Ensure substrates are structurally sound, clean, dry, and free from grease, wax, loose dust, or efflorescence.

Mixing & Activation: Supplied in pre-fixed amounts. Add the specified measure (weight basis) of clean water (or in ratio of 1 powder:1.5 water) to the dry powder and mix gently and thoroughly. Allow the mixture to stand for **10 minutes** to enable the natural casein protein to unfold and react with the lime. Remix thoroughly again before application.

Brush Load: For optimal application, keep two brushes accessible: e.g., a 4-inch block brush for broad coverage and a 1-inch detail brush for precision along edges. Dip only the tip—approximately one inch of the bristles into the paint, then flick off excess material prior to each loading.

Note: The best results are always achieved through multiple thin coats rather than a single heavy coat.

General Workflow: Brush application is strongly recommended, as the subtle texture and brushwork patterns established in this primer layer directly influence and enhance the visual movement and depth of subsequent Cloudlime coats. Begin application at a top corner of your choice to avoid splattering on areas already completed. Use the brush to spread and work the primer evenly. Stir periodically during application to prevent settling.

Recoating: Apply the next coat once the previous coat has dried. Standard applications require two coats.

Recoat Time: Approx. 30 minutes, or when touch dry

Touch Dry: Approx. 30 minutes under normal daytime conditions.

Post-Application Sanding: Once fully dried, sand lightly using an **~800 grit** (or finer) sandpaper to smoothen the surface. Brush and remove the dust, in preparation for application of Cloudlime.

Important Notes:

Note 1: Pot life is 24 hrs. The bonding performance of casein is time sensitive. After mixing the primer with water, use within the day. Apply the entire mixture within this period to achieve effective bonding performance. **Discard after 24 hours** as the casein binder will begin to fold back on itself and may form a jelly-like mass at the bottom of the container.

Note 2: During mixing, some frothing is expected. Some grains may also not fully dissolve. This is completely normal and expected with natural materials.

6. Cleaning

Clean tools immediately after use with soap and water. For persistent stains on other surfaces: vinegar or citrus-based, wax-infused furniture spray are effective.

7. Packaging

2kg set in 5L bucket and 160g set in 400ml sample pot

8. Color

White powder

9. Consumption

Note: The following figures are derived for application on smooth surfaces with existing emulsion paint.

	Dry Powder Basis	Wet Mixture Basis (Powder: Water = 1:1.5)
Consumption Rate (2 coats)	20 – 25 sqm per kg	8 – 10 sqm per kg
	160g Sample Pot	2kg Set
Coverage (2 coats)	3.2 to 4.0 sqm per pot	40 to 50 sqm per set

10. Disposal

Disposal must be made according to official regulations.

Do not dispose with other household garbage.

11. Safety

This product is highly alkaline. Prolonged skin contact will cause redness and discomfort.

Always wear relevant PPE, including vinyl gloves, safety glasses and long-sleeved attire. Refer to Safety Data Sheet for more information.

12. Disclaimer

While the technical data and recommendations provided in this report reflect our current knowledge and experience, they should be considered indicative and subject to verification through practical, long-term application. Users must independently evaluate and confirm the suitability of Casein Primer for their specific intended use prior to application. The user assumes full responsibility and liability for any consequences or outcomes resulting from the use of this product.