



You Build, We Protect!

NEWSLETTER

The Hidden Risk in Surface Preparation

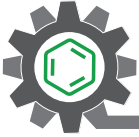
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**Beneath the Surface:
Preparation
is Everything**

- ◆ **Surface First, Performance Always**
- ◆ **Failure Starts Before the First Coat**
- ◆ **The Unseen Cost of Poor Surface Preparation**



The Hidden Risk in Surface Preparation



Build it Right from the Start: Surface Prep First

> Surface Preparation: The Foundation of Coating Success

Industry studies confirm that up to 80% of premature coating failures are caused by insufficient surface preparation. No matter how advanced or chemically resistant a coating may be, it will fail if applied to a substrate contaminated with oil, salts, dust, or an inadequate surface profile. Proper preparation is not just a step in the process, it is the foundation of long-term corrosion protection.

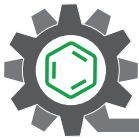


The Shortcut Trap: Fast Now, Expensive Later

Project schedules are often tight. Contractors may feel pressure to reduce blasting time, skip a chloride contamination test, or apply coatings on slightly damp surfaces to “stay on track.” But every shortcut creates a hidden liability.

- **Poor adhesion:** Inadequate preparation prevents coatings from properly bonding to the substrate, leading to early disbondment.
- **Premature failure:** Coating peel, blister, or corrode much earlier than expected.
- **Unplanned maintenance:** Repair costs often exceed the original application.
- **HSE risks:** leaks, structural failures, and environmental hazards.
- **Production losses:** Downtime due to failure can result in substantial financial losses each day.

Neglecting surface preparation quietly builds up a risk that compounds over time, often revealing itself through failure when it's too late to fix cheaply.



The Hidden Risk in Surface Preparation



Clean, Rough, Dry: The Foundation of Lasting Protection

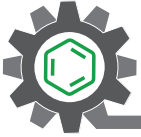
A coating system's success depends on achieving three key surface conditions:

- **Cleanliness:** Oils, salts, mill scale, and dust must be fully removed. Even a few milligrams of chloride per square meter can trigger osmotic blistering and rapid disbondment.
- **Roughness / Profile:** A sufficient anchor profile is essential for mechanical bonding. Too shallow a profile leads to weak bonding; too deep creates sharp peaks prone to rust-through.
- **Dryness:** Residual moisture or condensation on the substrate promotes blistering, pinholing, and underfilm corrosion.

When one of these is overlooked, the coating may appear sound initially but begins to degrade invisibly. Weeks or months later, the damage emerges as blisters, rust spots, or peeling, requiring costly remediation.

These issues result in failures that compromise not only coating integrity but also asset safety, often leading to unplanned shutdowns, regulatory inspections, or costly emergency repairs.





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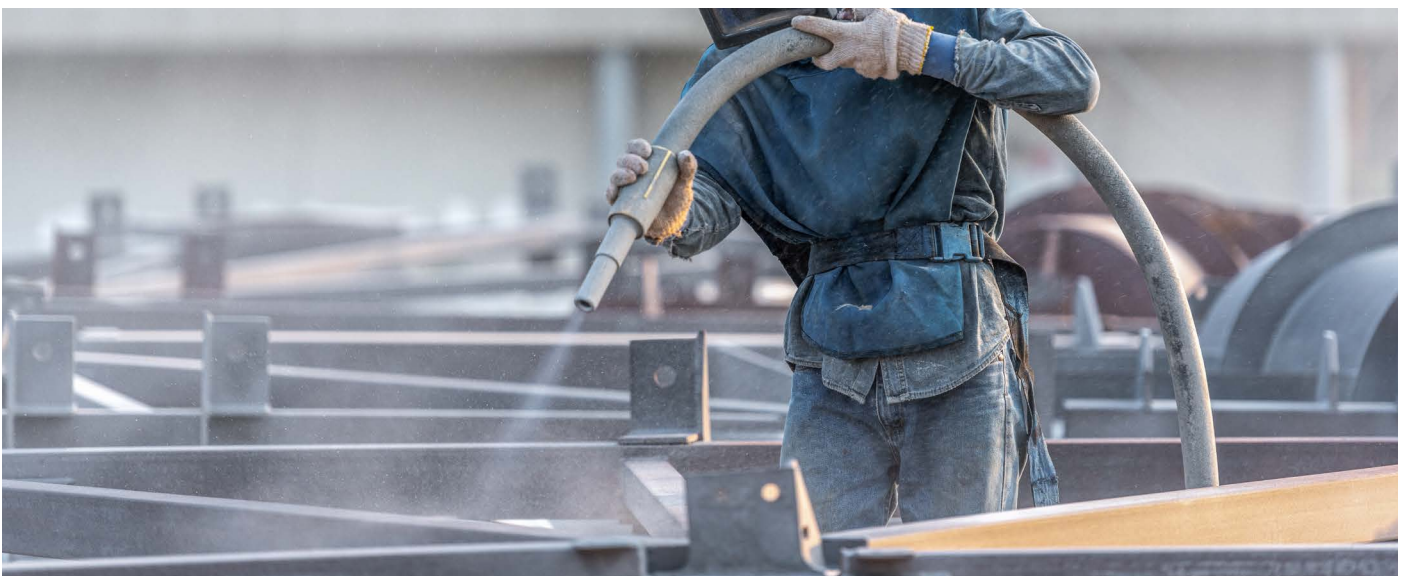


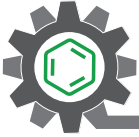
Industry Standards That Protect Your Investment

HEGSEL systems are engineered to align with internationally recognized standards. This ensures that project owners, applicators, and inspectors all speak the same language when defining what “good preparation” looks like:

- **ISO 8501-1 / SSPC-SP 10 (Sa 2½)** – Visual cleanliness grades for blast-cleaned steel. Near-white metal blasting is the global benchmark for high-performance coatings.
- **ISO 8502** – Test methods for soluble salts, dust, and contaminants. Regular checks prevent osmotic blistering and corrosion beneath the coating.
- **ISO 8503** – Methods for measuring surface profile. Ensuring correct anchor patterns avoids adhesion issues.
- **DIN EN 14879-1** – Comprehensive requirements for coating systems in chemically aggressive industrial environments.
- **DIN ISO 12944-4** – Defines preparation for steel exposed to atmospheric categories (C2 to C5, CX).

Compliance with these standards is not optional, it is the foundation of predictable, certifiable performance.





The Hidden Risk in Surface Preparation



HEGSEL Surface Prep Guide: What Excellence Looks Like

Every **HEGSEL** datasheet has a “Surface Preparation” section. These datasheets define clear and rigorous surface preparation protocols based on hands-on field experience, practical testing, and alignment with international best practices. While general principles are provided here, surface preparation for each project is customized by **HEGSEL**’s technical team according to factors such as substrate type, chemical exposure,

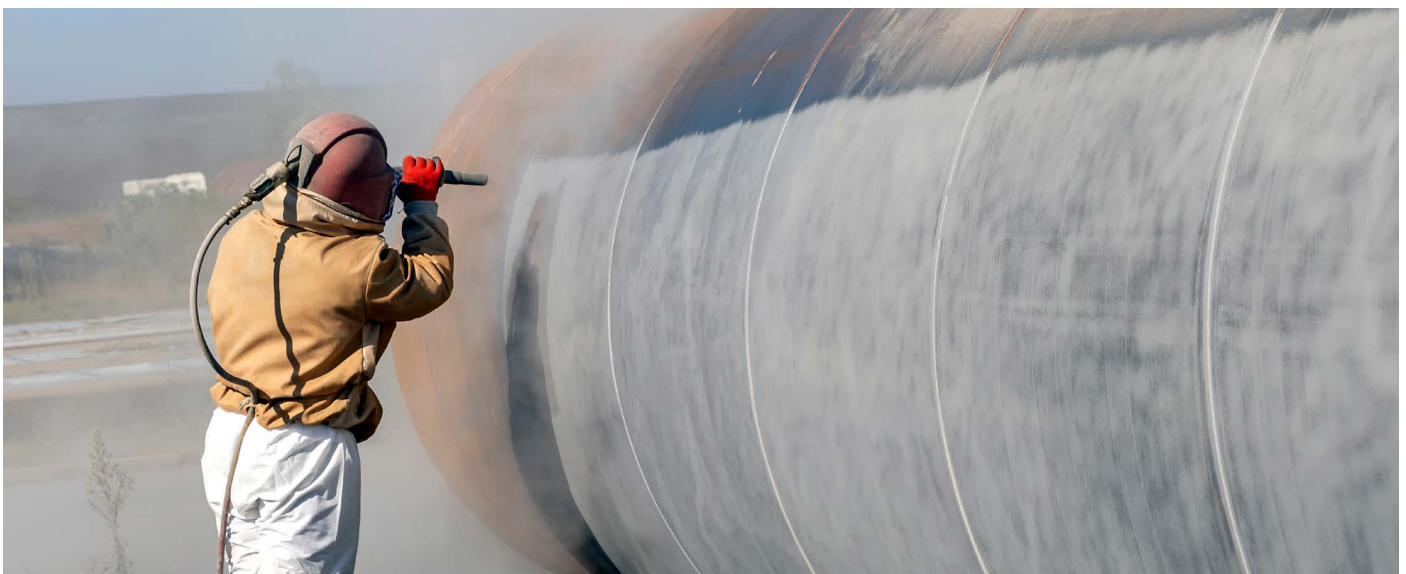
and environmental conditions, and delivered to clients as a project-specific procedure. These procedures are engineered not just to meet regulatory and chemical resistance requirements, but to ensure every coating and lining system bonds securely, performs consistently, and withstands even the harshest industrial conditions. Typical substrates for industrial coating systems include:

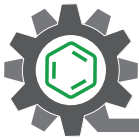


1 Steel Substrates:

For steel substrates, the surface must be blast cleaned according to ISO 8501-1, grade Sa 2½, using angular grit to remove mill scale and corrosion products. The surface profile should be between 50 and 100 microns to provide sufficient mechanical anchoring. Soluble salts must be checked using ISO 8502-6/9

test methods and typically must not exceed 18 mg/m² for areas subject to severe corrosion or direct seawater exposure. Once blasting is completed, the coating should be applied immediately to avoid flash rusting. Cleanliness should also comply with DIN EN 14879-1 before application.





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2 Concrete Substrates:

For concrete substrates, preparation must follow DIN EN 14879-1 or SSPC SP 13 / NACE No. 6. The concrete substrate must be structurally sound, level, and free from dust, oil, grease, laitance, cement skin, loose or friable material, broken sections, and cracks. Any surface irregularities should be repaired with suitable materials. A roughened surface

should be created by abrasive blasting, grinding, or scarifying, and all dust must be removed using industrial vacuuming. The residual moisture of the concrete must not exceed 4%, and the tensile pull-off strength must be at least 1.5 MPa. Final cleanliness can be checked by wiping with a clean dark cloth to confirm the absence of dust and salts.



3 Environmental Conditions:

Environmental conditions during application are just as important as substrate preparation. The substrate temperature must remain at least 3°C above the dew point to avoid condensation. The application temperature should generally fall within 10 to 30°C, depending on the coating system datasheet. Relative humidity should not exceed 80%, and coatings must be applied as soon as possible after blasting,

especially in humid environments. These conditions help prevent moisture entrapment and ensure successful adhesion and curing.

These requirements are not just technical recommendations. They are fundamental rules that determine whether a coating system will deliver long-term durability and compliance in demanding industrial environments.



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4 Invest in the Surface, Earn the Results

The value of any coating system is not measured the day it is applied, but in how it performs after years of service in aggressive environments. A properly prepared surface is the hidden factor that determines whether a protective lining lasts for decades or fails within months. That's why **HEGSEL** encourages all asset owners, applicators, and engineers to treat surface preparation not as a side task, but as a core part of corrosion protection strategy.

The temptation to reduce surface preparation costs is understandable. Blasting, cleaning, testing, and environmental control can account for 30 - 50% of the total coating project budget. However, cutting those steps does not actually reduce costs, it simply transfers them to the future in the form of premature failures, emergency shutdowns, and expensive repairs.

Our Commitment to Coating Success

Let us support your next project with technical guidance, certified materials, and world-class protection. For consultation and technical advice, please visit our website and reach out to our technical team.

HEGSEL's technical team is ready to assist you with the selection of the right products and application methods to meet your specific exposure, budget, and durability needs.

[Click here to contact our team](#) and let us help you build the right protective solution for your projects.

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