



# TECHNICAL BULLETIN

W. R. MEADOWS OF CANADA

## Application Guidelines: VOC-Exempt Curing and Sealing Compounds

As VOC regulations have changed and become more restrictive, product manufacturers have had to rethink formulation of solvent-based concrete curing and sealing compounds. Solvents that were typically used in the past must now be partially or totally replaced with solvents that are considered VOC-exempt.

Incorporation of these VOC-exempt solvents into formulas has altered the physical properties and performance features that you may have been used to with traditional formulas from the past.

VOC-exempt solvents have very low flash points, producing finished products that are extremely flammable. Read and follow ALL literature, MSDS, and label environmental health, safety, and handling instructions/precautions **PRIOR** to use.

VOC-exempt solvents also have a tendency to evaporate or “flash-off” very quickly. This is even more evident in high temperature, windy conditions that are often encountered when applying concrete curing and sealing compounds. Common application problems can include:

### **Resin Strings:**

This is also known as “spider-webbing” or “cotton candy.” Resin strings are caused when the liquid portion of the sealer (solvents) evaporate before the sealer has a chance to “wet out” and properly form a film on the concrete. This is typically seen when applying with a roller or fine-tipped sprayer. To avoid: Apply sealer when temperatures are low, not in direct sunlight, and when there is little wind. Use a larger spray tip (1.0 gpm) and don’t overwork (over-roll) application when using a roller.

### **Blisters/Bubbles:**

These are caused when the top surface of the sealer dries (skins over), trapping solvents before they can properly evaporate. To avoid: Apply sealer when temperatures are low, not in direct sunlight, and when there is little wind. Multiple thin coats are

better than a single, thick application, DO NOT OVER APPLY.

### **Diffusion/Haze:**

This can appear as white to light gray “haze” in the sealer film. This haze can appear immediately when sealer has dried, or days, weeks, or months after application. Haze is caused by the sealer “lifting” off the concrete surface. When the sealer begins to lift or pull off, a “gap” is formed between the sealer film and the concrete surface. When light is reflected off this air void (gap), it becomes diffused – causing a hazy appearance – instead of the clear, colourless reflectance that is seen if the sealer is properly adhered.

### **Roller marks:**

Just as when painting or staining, roller marks will be evident wherever the sealer has been overlapped on drying material. This pattern can appear very quickly with the new VOC-exempt solvent formulations. The amount of pressure placed on the roller can also affect the finished film appearance.

The following should be considered a guide to aid in the proper application of curing and sealing compounds and concrete sealers containing VOC-exempt solvents. Due to the increased difficulty related to applying products containing VOC-exempt solvents, W. R. MEADOWS recommends that the products be applied by experienced contractors/applicators. **Spray application is the preferred method of application and will help minimize the chance of over-application and the subsequent bubbling or whitening/haziness cloudiness that may result.**

### **General Conditions:**

- Fresh concrete surface needs to be free of moisture sheen.
- Existing concrete that has been thoroughly cleaned, rinsed, etc., should be allowed to dry for a minimum of 24 hours (preferably 48 hours) before sealing or resealing.

- Apply when the concrete is in its cooling cycle. (Concrete has reached its maximum temperature of the day and has begun cooling; this is typically in the evening.)
- **Surface temperature** of the concrete **must** be between 10° - 30° C (50° - 86° F).
- Keep opened container out of direct sunlight.
- Perform tape test prior to full scale application to determine the suitability of the substrate to receive sealer (for existing concrete). Apply clear packing tape to the concrete surface, remove and then check tape for dust, dirt, and debris; if evident, surface needs additional preparation and cleaning.
- Just prior to applying sealer (for existing concrete), remove all dust, dirt, and debris utilizing high velocity air.
- Multiple thin coats are better than a single, thick application. (Wait a minimum of one hour between coats.)

#### **Application - Sprayer:**

Use a low pressure, high solids, industrial/commercial-grade sprayer that is suitable for use with high concentrations of VOC-exempt solvents. Sprayers should be fitted with solvent-resistant Extreme Viton (encapsulated silicone Viton) **or** EPDM seals, gaskets, o-rings, etc. (Do **NOT** use garden sprayers or foam oil sprayers.) The sprayer must be clean and dry prior to application. It's also important to read and follow all instructions provided by the sprayer manufacturer, PRIOR to use. For best results, W. R. MEADOWS recommends a spray nozzle (tip) that provides a 1.8 L (1.0 gpm) application rate with a fan angle of 110°. When applying, keep the spray tip within 30 cm (12") of the surface at all times.

While simple spraying of the product onto the concrete is an option, optimum performance is typically achieved by first spraying the product on the concrete, followed by back-rolling using a roller. To accomplish this, one (1) applicator will spray the concrete curing and sealing compound or concrete sealer onto the concrete using the recommended coverage rate and a second (2<sup>nd</sup>) applicator will quickly follow behind and IMMEDIATELY back-roll the product into a uniform film on the concrete surface. It's important to do these steps quickly, as these products will dry extremely fast. If puddles or over-application occur, it's critical to immediately brush or roll them out. In hot and windy conditions,

you may need to back roll using SEALTIGHT SOLVENT from W. R. MEADOWS (or straight solvent, such as xylene) to obtain a clear, uniform film.

**If spraying is not an option and you are considering using a roller, care must be taken not to over apply or create roller marks; alternatively, consider a water-based formulation, such as VOCOMP<sup>®</sup>-25 or DECRA-SEAL<sup>™</sup> W/B.**

**Application - Roller: Use caution. Recommended for experienced/professional applicators/contractors.**

Use a short nap (1/4" is ideal; 3/8" on patterned concrete) mohair roller. Note: Roller must be solvent-resistant. To ensure proper film formation, the following steps should be followed carefully:

- Maintain a wet edge while applying.
- Do not apply thick films.
- Do not roll or brush excessively, as this will cause the film to become stringy (i.e., "spider-webbing," "cotton candy.")
- Do not roll or brush once material becomes tacky.
- Do not roll over partially dried material. Over-rolling or using incorrect rollers may cause bubbles/blisters to form in the film.
- Do not allow roller to become dry.

#### **Precautions:**

W. R. MEADOWS recommends that applicators have a pail of SEALTIGHT SOLVENT and a separate, clean roller present on the jobsite at the time of the sealer application. If SEALTIGHT SOLVENT is not available, xylene may be used. If problems occur during or after application, such as diffusion, blister/bubbles, lap lines, etc., apply a light coat of SEALTIGHT SOLVENT (using a solvent-resistant roller) over the film. Once the SEALTIGHT SOLVENT evaporates, the sealer dries, leaving a uniform, clear, colourless film, resulting in optimal appearance and protection qualities for the concrete.

Regardless of which application method is used, a small test application is ALWAYS recommended, **PRIOR** to the full-scale application. It is critical to use the same equipment, personnel, techniques, coverage rates, temperatures, conditions, etc. for the test application that will be used/encountered during the full-scale application to ensure proper performance and appearance of the sealer.

For optimum performance, apply the first coat at 14.7 m<sup>2</sup>/L (600 ft.<sup>2</sup>/gal.). After the first coat has thoroughly dried, apply a second coat at a right angle to the first, again at 14.7 m<sup>2</sup>/L (600 ft.<sup>2</sup>/gal.).