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Hot Weather Waterproofing with Tremco’s PUMA Technology Systems

Tremco’s standard application instructions for applying PUMA systems advise that you should not apply these products when the UV index is above 7. Also, the substrate temperature should be 115°F or below. When the UV index is greater than 7 or the substrate temperature is greater than 115°F then the characteristics of the system can change. Going above the maximum limits can cause the material to not cure properly which can cause softening, discoloring, and bonding issues with subsequent coating layers. This document will cover all aspects of the application process that can be modified to work near or at the maximum application limits for temperature and UV.

Material Storage:

It is very important that all components of the Tremco PUMA Technology coating systems be stored in a shaded area. This is especially important when working in conditions that are near the upper application limits of temperature and UV. This can be achieved by setting up tents in open areas and using tarps to create shaded areas. Best practice would dictate that the mixing station be very near the material storage and therefore be in the shaded area as well.

Substrate Condition:

In conditions near these upper temperature and UV limits, concrete may exhibit very high vapor drive. Essentially, this means that moisture is escaping from the concrete at a rapid rate. This may result in the formation of pinholes in the waterproofing membrane as it cures. A compatible vapor-mitigating primer can be used in lieu of Tremco’s PUMA primer in situations where this is a concern. Tremco offers TREMPPrime VB, which is a 2-part vapor-mitigating, epoxy primer that is compatible with our PUMA products.

Initiator Dosages:

Tremco’s PUMA products are all chemically cured, and the curing process is activated using Tremco PUMA Initiator. This initiator dosage is based off ambient temperature, but it can also be adjusted to affect the cure time. However, the dosage must not drop below a minimum threshold which is 75 grams of initiator per gallon of resin. The initiator dosages for common weather conditions are adjusted to accommodate for the above-mentioned conditions; the new table is as follows:

| Temperature °F | Temperature °C | Grams or ounces/gallon |
|----------------|----------------|--------------------------------------|
| Above 75 | Above 24 | 100g or 3.5oz of initiator/gal resin |
| 65 - 75 | 18 - 24 | 125g or 4.4oz of initiator/gal resin |
| Below 65 | Below 18 | 150g or 5.3oz of initiator/gal resin |

Cure Time:

A very significant detail that changes when working near the upper application limits for temperature and UV is the cure time and the working time while applying the coating. Tremco's PUMA coatings cure in about 30-45 minutes. The cure time is significantly reduced, even at minimum dosages of Tremco PUMA Initiator, when approaching or at the maximum temperature or UV limits. The resulting effect is a significant reduction in pot life. The installer has a time frame of about 10 minutes after the PUMA is initiated to apply the coating and potentially broadcast aggregate before it should no longer be worked.

Field Installation Recommendations:

In the presence of high UV and/or high temperature conditions, the following recommendations may help with the installation process:

1. Pre-mix all pails for 3 minutes before batching down or adding initiator.
2. Batch down the pails of PUMA material to no more than 3-gallon batches for large surface areas and no more than 2-gallon batches for smaller surface areas.
3. Mix the batched-down portion thoroughly for 2 minutes with Tremco PUMA Initiator in accordance with the hot-weather initiator dosage chart from this document.
4. After pouring out initiated material, there should be at least 3 people working the material to make sure it gets applied at the correct mil thickness before the pot life has passed. Tremco recommends one person to spread material with a squeegee or rake, and two people to back roll or spike roll, depending on which coating is being applied.
5. When broadcasting sand is required then it is recommended to do this as quickly as possible after the applicators have achieved the correct mil thickness and proper aesthetic. Therefore, this will require broadcasters separate from the people applying the coating.
6. The time of day for the application would be best suited for early morning or late afternoon into the evening. At these times of the day the temperature and UV are usually lower than they would be between late morning and early afternoon.