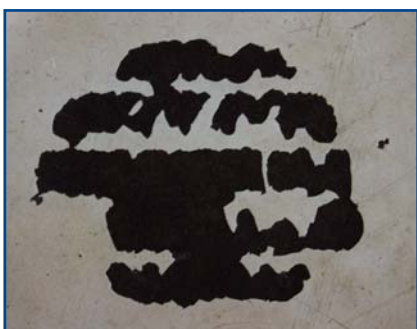


Having a discussion...

“Tire Staining”

Hydrostatic pressure moisture bubbles from chemical resistant urethanes (CRU's) are not the only challenge to hangar floors. Safety can also be an issue, since the highly crosslinked, glossy urethanes are slippery. Safety issues, however, can be resolved easily by adding non-skid aggregate. Occasionally, complaints come from overly-strong light reflectance (direct sunlight can reflect and hurt sensitive eyes). Generally, the only other complaint is tire staining. Just as there is no 100% guarantee, or easy answer to moisture problems, no CRU will promise 100% tire stain-free resistance on a white floor - not one.



Example of hangar floor where the tire lifted/peeled the coating (this should not happen in any case and is an example of poor application, not staining).



Carpet pad placed to prevent tire staining.

The Manifestation

What is especially intriguing is that some rubber tires will cause staining and others will not; often there is no way to know ahead of time. A 90,000 pound Gulfstream aircraft may not leave a single mark, while a 3,500 pound Mercedes parked nearby leaves black tread marks (“ghosts”) that become impossible to remove.

The reasons for staining have been explained as the tire carbon black and plasticizer chelating with free isocyanates from the CRU. The weight on the tires does not seem to be as important as their newness, the area temperature, and whether the rubber tires had contact with the floor on hot or cold days, as well as how old and well cured the urethane floor is.

The Prevention/Correction/Cure

Solutions to this issue vary from laying out carpet remnants, acrylic sheeting, or stainless steel

plates under the tires. Even cardboard helps, but none of these are permanent, and, of course, they have to be repositioned. Solvents are not effective nor is emery paper, rubbing compounds, or fine sandpaper, since they dull the urethane gloss.

Some coating treatments do not stain, such as certain epoxies, but lack in other properties, like long-term gloss and color retention. In other words, they chalk, but do not provide the new, wet look of CRU urethanes on a long-term basis. These have to be recoated much sooner for aesthetic purposes. The cure, then, becomes worse than the illness!

The simplest and most attractive solution is to paint a black square underneath the aircraft tires. Obviously, this is of no help to a large fixed base operator (FBO) who may position varied and different size aircraft several times daily.