



MARNOT FILMS: CARE AND HANDLING

Marnot is a trade name for a coating technology that is applied to a variety of substrates, which enhances their abrasion and chemical resistance, and in some cases alters their appearance (mattes). The coating is a thermoset material, which means it was transformed from a liquid to a solid through a chemical reaction with exposure to some form of energy (heat, light, etc.). Most of the films used in printing and packaging applications are thermoplastic films. This means they are made by melting the plastic, forming into film - usually by extrusion - and cooling to freeze into final shape. Thermosets differ from thermoplastics in several other ways, thermosets:

- Cannot be re-melted and reformed.
- Are usually more brittle than thermoplastics.
- Will typically shrink somewhat when cured.
- Are almost never 100% cured or reacted.

The Marnot XL is a thermoset hardcoat that is applied to both polyester and polycarbonate, which also allows the hardcoated side to be printed. The following are some suggestions that will allow you to get the highest level of performance out of the Marnot XL films and avoid some common pitfalls.

- **Do not apply excessive pressure.** Don't ship or stack heavy loads on top of the Marnot. The excessive pressure can result in excessive masking adhesion or transfer of masking material to an unmasked side of the film. Localized pressure can also cause crazing or cracking of the coating and/or film.
- **Condition film to print shop environment - minimum of 48 hours.** This is especially important if the shipping or storage environment is significantly different than that of the print shop. Failing to do this could result in condensation build-up that in turn could cause handling problems, poor ink adhesion and/or mask residue.
- **Avoid excessive heat, light and humidity during storage.** Besides eliminating the need for conditioning this will slow the aging process and reduce the rate of post-cure that can result in poor ink adhesion to the hardcoated side. Store at room temperature, 50% relative humidity and cover exposed sheets with an opaque material like black polyethylene.
- **Rotate your inventory.** Ink adhesion, especially on the hardcoated side, can be effected by the age and storage conditions of the material. Tekra recommends that Marnot XL should not be used for 1st surface printing if over 24 months from date of manufacture when properly stored. For all other fabrication the shelf life is indefinite.
- **Do not attempt to heat stabilize Marnot polyester.** The high temperatures needed to stabilize or preshrink polyester will cause surface irregularities because the coating will not shrink as much as the film. This procedure will also effect ink adhesion to the coated side.

- **Remove the protective mask (if any) in a controlled environment.** Marnot XL can be ordered with a mask one or both sides. This mask protects against contamination and surface damage, especially on the uncoated side, during shipping and handling. When the mask is removed prior to processing it should be done in a clean and static controlled environment. The Marnot side mask may leave an adhesive residue if partially removed and exposed high moisture (humidity) levels for extended periods. Either remove completely or protect from moisture.
- **Minimize handling unprinted stock with no mask on only the uncoated side.** This will reduce the possibility of scratching and contamination from dirt and masking between the sheets of film.
- **Use only those inks that have been tested and approved for use on your specific type of Marnot.** Have your ink supplier test or call TEKRA for recommendations. Different applications may have different requirements. It's always best to test by simulating the end use environment.
- **Solvent-based inks must be completely dried.** This is especially important if the sheets are going to be held in a stack for a period before further printing. Solvents that are allowed to permeate from the ink into the next sheet of film will cause ink adhesion problems on the opposite side and the formation of mask residue.
- **Pretest for lock-up when printing multiple passes UV.** Exposure to high intensity UV will eventually result in poor UV ink adhesion. Test for lock-up by exposing the film in the UV reactor to simulate all but the last pass, then print the last pass and test for adhesion. When using the crosshatch tape test be sure the part has been conditioned to room temperature for a period of time before applying the tape to avoid getting a false failure.
- **Use only TEKRA approved mask on the hardcoated side.** Some masking materials will "freeze" to the hardcoat and become difficult if not impossible to remove.

While it's true that Marnot XL can be and has been successfully processed without taking these precautions, the potential for a problem is still there.

**FOR ALL OTHER PROCESSING TIPS REFER TO INFORMATION ON THE
SUBSTRATE MATERIAL.**

If you have any questions about this or have suggestions for other TekTips please contact your TEKRA representative.