

PETP-P-09.- Injection Molding 3mm Plaques.

Background

This document presents standard practice to Injection mold either dry flake or crystallized pellets into 3mm thick amorphous transparent plaques for evaluation of color, haze and presence of black specks and inclusions.

Practice Summary

Flake and/or pellet are dried and injection molded into 3mm thick plaques for evaluation for color, haze and content of specks and inclusions.

Equipment Required

- Desiccant or vacuum dryer
- Lab Scale injection molding machine allowing no more than 6 minutes of injection barrel residence time.
- 3mm thick plaque mold with nominal dimensions of 50x50 mm, or greater.
- Chiller for mold
- Moisture tester capable of evaluating < 50ppm water content in PET pellets

Materials and Reagent Required

- Flake, crystallized pellet and/or solid stated pellet made from control material
- Flake, crystallized pellet and/or solid stated pellet made from test material.

Practice Steps

In many cases, the injection equipment are not prepared to process flakes. In this case, the material need to be pelletized and crystalized.

1. Weigh the required amount sample flake or pellet for processing the number of plaques required for each control and test material.
2. Dry the flake or pellet in a desiccant or vacuum dryer capable of achieving a moisture content of less than 50 ppm for PET flake and/or pellet dried in the unit at 160° C.
3. Starting with the control material, prepare the injection machine to provide:
 - a) Target melt temperature at nozzle to be 275°C
 - b) Target mold temperature 20°C
 - c) No more than 6 minutes barrel residence time.
4. Injection mold the required number of plaques;
 - a) plaques should be transparent and contain no haze from crystallinity.
 - b) Processing conditions should be the same for control and test.
 - c) In the event of process change, it is required to record this change.
5. Purge injection unit with natural PET between samples

Properties of the different samples (control and test) have to be collected and tabulated (Specs, Transmittance, haze, and color)

DOCUMENT REVISION HISTORY

Version	Publication Date	Revision notes
V0	Sept-21	NEW DOCUMENT