

# PET Flake Oven Bake Test

Document Code – PET-S-10

Publication or Revision Date: November 16, 2018

## Introduction – Scope, Significance and Use

Contamination in washed PET flake may be revealed when the flake is baked in air at high temperature. This is a test that can be used in any laboratory evaluation directed to identifying contamination in PET flake. Contamination may be observed as melted particles, discolored material that is not PET, and a change in color of the PET flake. A change in color of the PET flake may occur from the use of additives in the PET, or as the result of adhesives or ink residues adhered on the flake surface.

The appearance of contamination in this test may signal that the PET flake is not suitable for use in certain recycling applications.

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## Test Method Summary

Washed PET flake is exposed in an oven at 220° C to reveal any contaminants that melt or discolor with heat and air oxidation. PET flake will not melt at this temperature and will remain as free-flowing flakes. The individual flakes may discolor if there is contamination on the surface of the flakes. The color of flake can be evaluated before and after baking.

## Equipment Required

- Weigh scale (0.001 ± grams)
- Conventional lab oven that can control temperature to 220°C

## Materials Required

- Baking pans
- Aluminum foil
- PET flake samples, 100 grams minimum suggested.

## Test Method Steps

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1. Pre-heat the oven to 220°C.
2. Weigh the flake sample and place it in a baking pan.
3. Place the sample in the oven for 60 minutes time.
4. Remove the baking pan from the oven and allow the sample to cool at room temperature.
5. Spread the flake out onto a clean white work surface.
6. Manually inspect the sample for any discoloration, burnt pieces of plastic, colored spots and sticking. A spatula and tweezers can be used to separate contaminated material.
7. Remove all contaminants and retain them. Common sources of contamination can be grouped if desired.
8. Weigh any separated components and record values.
9. PET flake color measurements may be conducted before and after the oven bake test. See PET-S-XX.

## Test assessment

This test is done for general information only, there is no specific guidance associated with this test. The preferred result is that no contamination is revealed and there is negligible change in the color of the PET flake as a result of after baking.

The table below illustrates how contamination results might be collected and reported.

### Test Oven Bake Data

Sample Fractions	Material Weight (g)	Sample Wt(%)	Content (ppm)
Baked Flake			
Contaminant 1			
Contaminant 2			
Contaminant 3			
Total Weight			

### DOCUMENT VERSION HISTORY

Version	Publication Date	Revision notes
1	November 16, 2018	Original Document