



NQAC

Nestlé Quality Assurance Center  
Dublin

# Technical Datasheet

**Analysis Name:** Material Characterization by Fourier Transform Infrared Spectroscopy Technology (FTIR)

**Method Number:** NQA-00.8321

**Scope of Application:** Plastics and Organic Material

**Description:** The sample is put in contact with an ATR crystal on the FTIR instrument and hit with an infrared light beam. The FTIR can detect the resulting absorption/emission of infrared light from the sample which corresponds to a distinct spectral fingerprint, which is based on the chemical makeup of the sample. That spectrum/fingerprint can be compared to reference libraries to attempt to identify the material.

See example report information below.

**Sample Weight Required:** 10 g

**Analytical Platform:** Infrared Spectroscopy

**Special Information:** When available, references or potential sources should be submitted with unknown samples for comparison.

The condition of the sample may impact the results obtained as the FTIR scans the surface of the sample. The lab may attempt to cut/break the sample apart to scan the interior which is more likely to be intact.

FTIR results are generally given in the form of a custom report and include information pertinent to the sample being scanned. Upon request, NQAC Dublin can compile the FTIR data into a library for the customer to compare to any future samples that may be submitted.



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Dublin, OH 43016

Customer Name  
Company  
Address  
Address  
Country

Report Number: Project number  
Date Received: 11/21/2022  
Date Analyzed: 11/22/2022  
Customer ID: XXXXX

CC: Report recipients

### LABORATORY REPORT

#### Sample Information:

**Project number. Sample number.#** – Sample Description

#### Investigation:

*This section is used to give a quick summary of the question/investigation that the customer is hoping to answer, along with the instrumentation the lab used during the investigation.*

Attempt to identify unknown plastic material using Fourier Transform Infrared Spectroscopy (FTIR). The FTIR used was a Thermo Scientific Nicolet iS10 using reflectance mode and a diamond ATR sampling accessory.

#### Analyses and Results:

*The first paragraph in this section is used to state what all was received from the customer, and to give a quick visual description. The lab will also take photos of the sample under the microscope (if small enough) or with a digital camera.*

Received one plastic piece from the customer, which was first photographed under the microscope, see Figure 1. The plastic piece is a bright blue color with just a few small residue spots. It measures approximately 8.3 mm x 2.0 mm and 0.20 mm thick.

*The second paragraph is used to describe the actual testing that happened, usually FTIR or XRF, any prep work needed, and give the results from the instrument.*

Next, the plastic piece was scanned on FTIR to get a spectrum of its bonds and functional groups for comparison to reference libraries. The closest match found to the unknown plastic sample was to polypropylene plastic, see Figure 2.

*The last paragraph is a conclusion bringing together both the instrument results as well as any observations the lab may have had during the investigation.*

Based on results from FTIR, the customer's plastic sample appears to be polypropylene plastic. If the customer identifies any potential sources, additional sample may be sent in for comparison to this project.



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Figures:

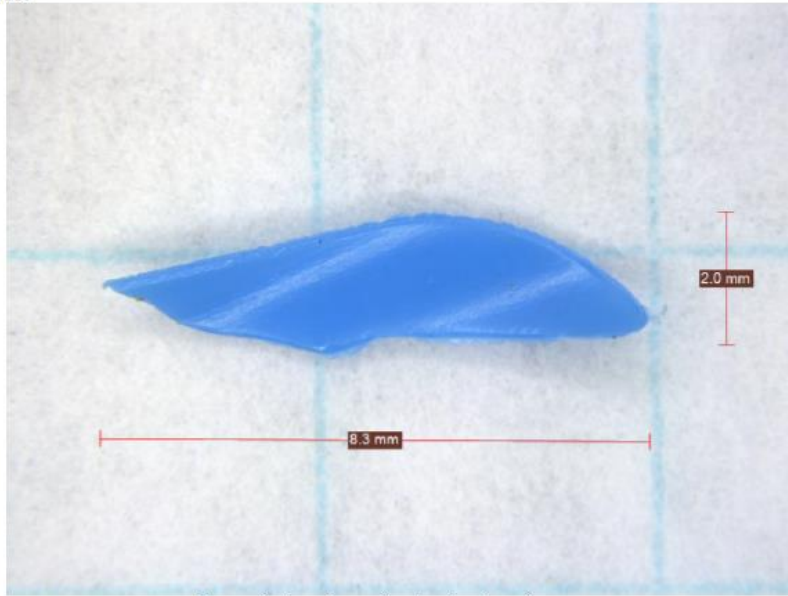
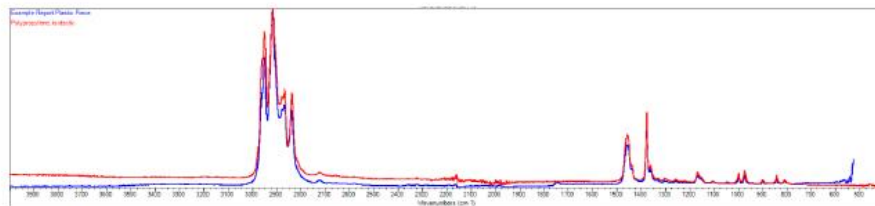


Figure 1: Sample received under the microscope



Title	Folder
Polypropylene, isotactic	HR Spectra Polymers and Plasticizers by ATR - corrected

Figure 2: FTIR spectral overlay of the plastic sample and polypropylene plastic

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