



# Polymer Materials Analysis Laboratory Analysis/Test Report

Date Received: 2022/07/13

Assignment No: 111A011-J111473

Date Issued: 2022/07/21

Applicant : Nu Personal Care Limited

Address : 29 Daws Lea, High Wycombe Bucks  
England HP11 1QG

Articles : GEX/GMX BamNu Straw

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Authorized by

  
Ou Yen-Ting  
Group Leader





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Item(s)/ Method(s)	Result(s)	Note
1. Material Identification SOP-C025-01	The main material of the sample is determinate as Polybutylene succinate (PBS) with Fourier transform infrared spectroscopy (FTIR) and Differential Scanning Calorimeter (DSC) analysis (the melting temperature ( $T_m$ ) is 112 °C). Test result see attached graph 1 ~ attached graph 2.	*

2. Inorganic Filler Analysis SOP-C025-01	Thermal Gravimetric Analyzer (TGA) analysis: Under the condition of $N_2$ , sample is heating from 40 °C to 800 °C at the rate of 20 °C per minute, the weight loss is constant and the remaining material is 11.9 % of ash, which contains 18.5 % Calcium carbonate ( $CaCO_3$ ) by Fourier transform infrared spectroscopy (FTIR) and Thermal Gravimetric Analyzer (TGA) analysis. Test result see attached graph 3 ~ attached graph 4.	
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REMARK :

1. Material Identification
  - 1.1 Wave number:  $4000\text{ cm}^{-1} \sim 600\text{ cm}^{-1}$
2. Inorganic Filler Analysis
  - 2.1 Sample weight: 9.0570 mg

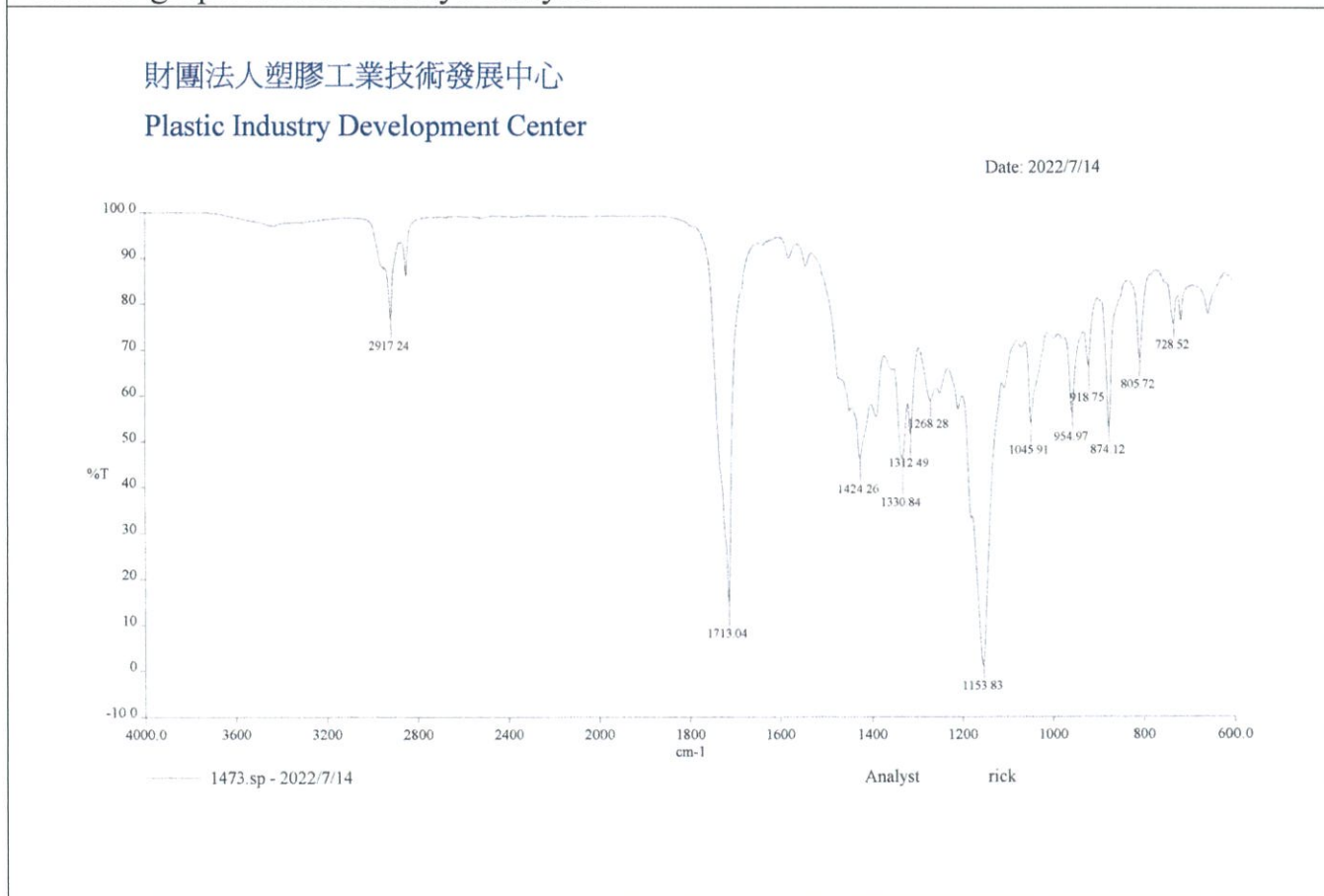


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Attached graph 1: Infrared rays analysis



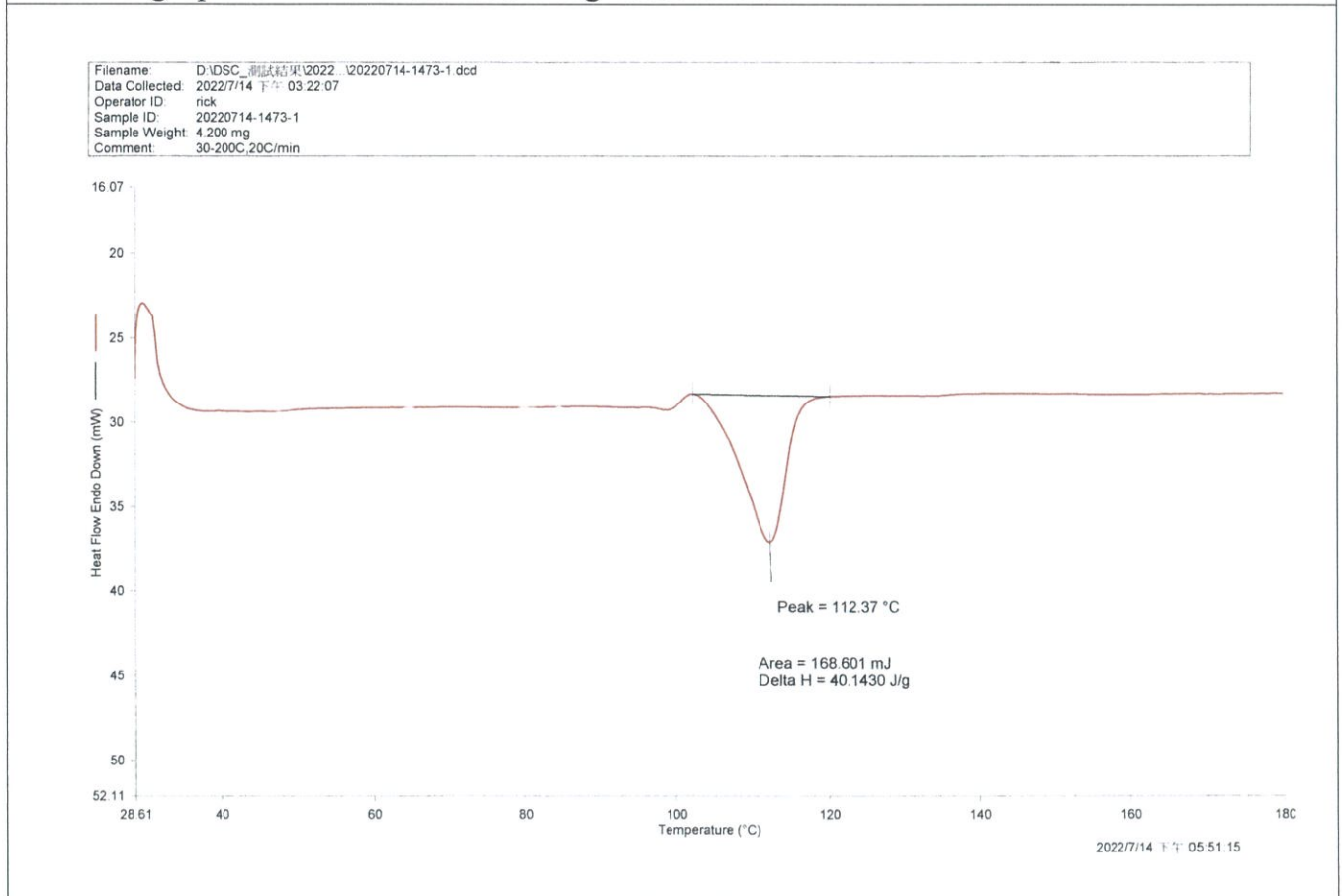


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Attached graph 2: Differential Scanning Calorimeter





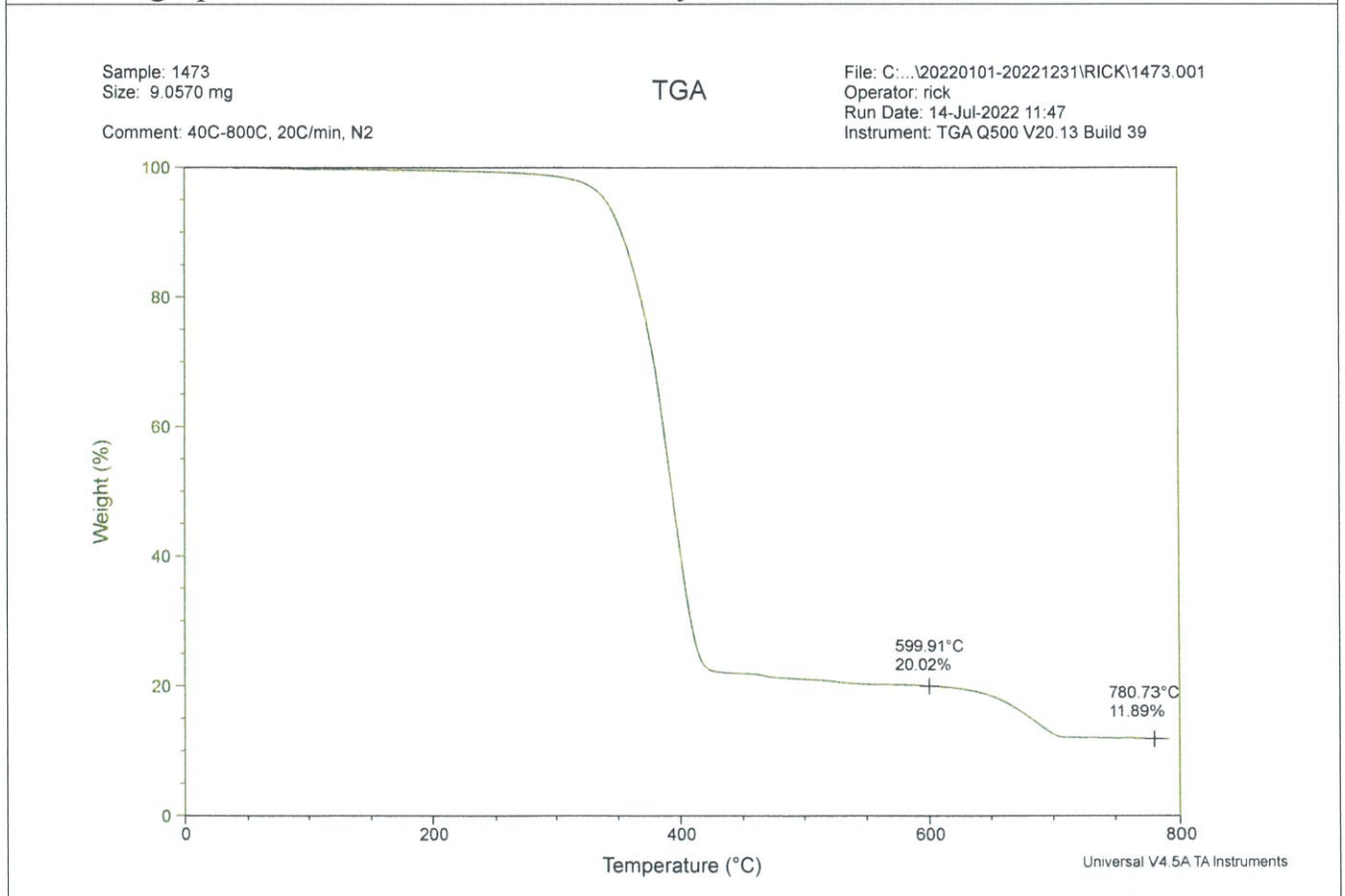


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Attached graph 3: Thermal Gravimetric Analysis



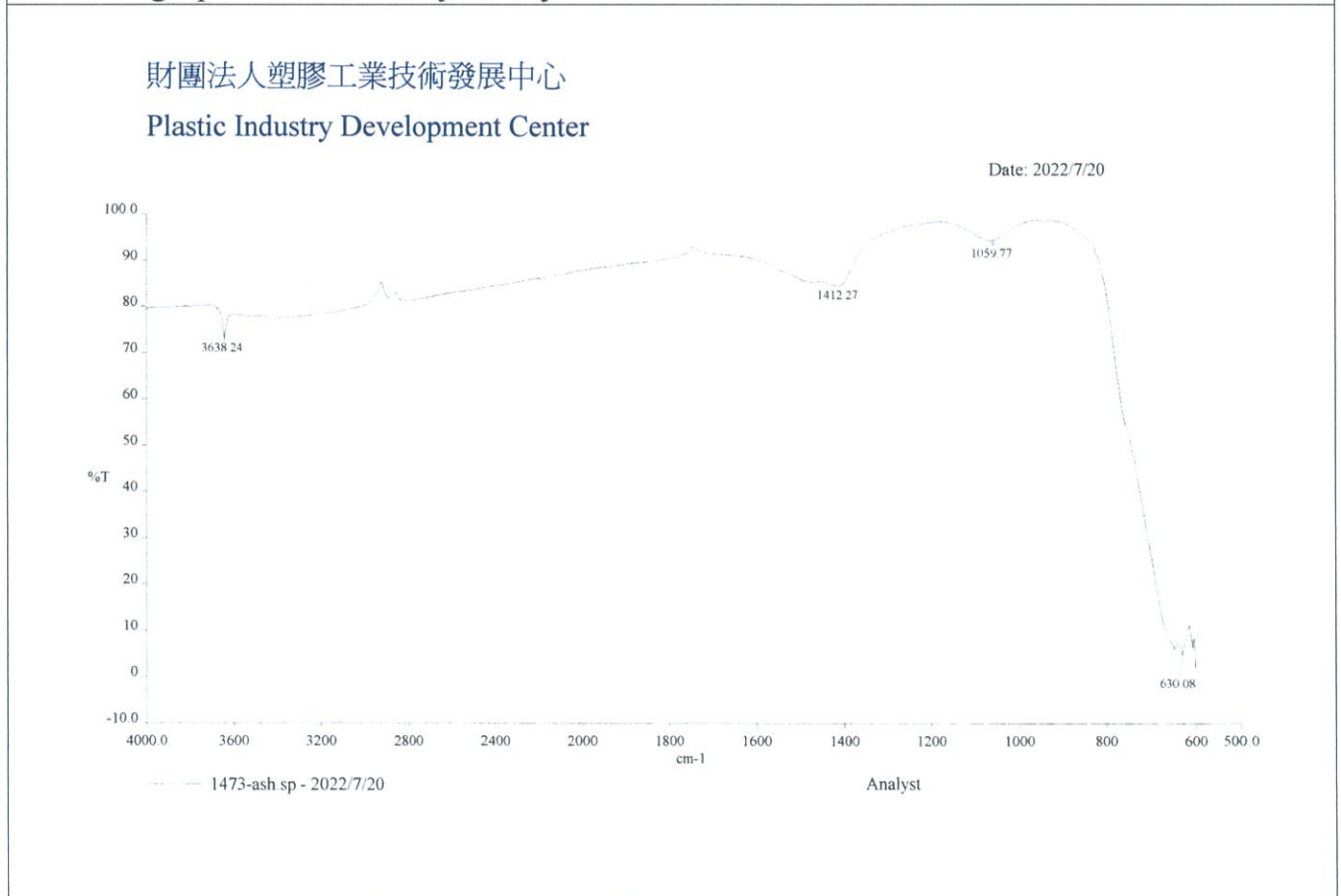


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Attached graph 4: Infrared rays analysis - ash



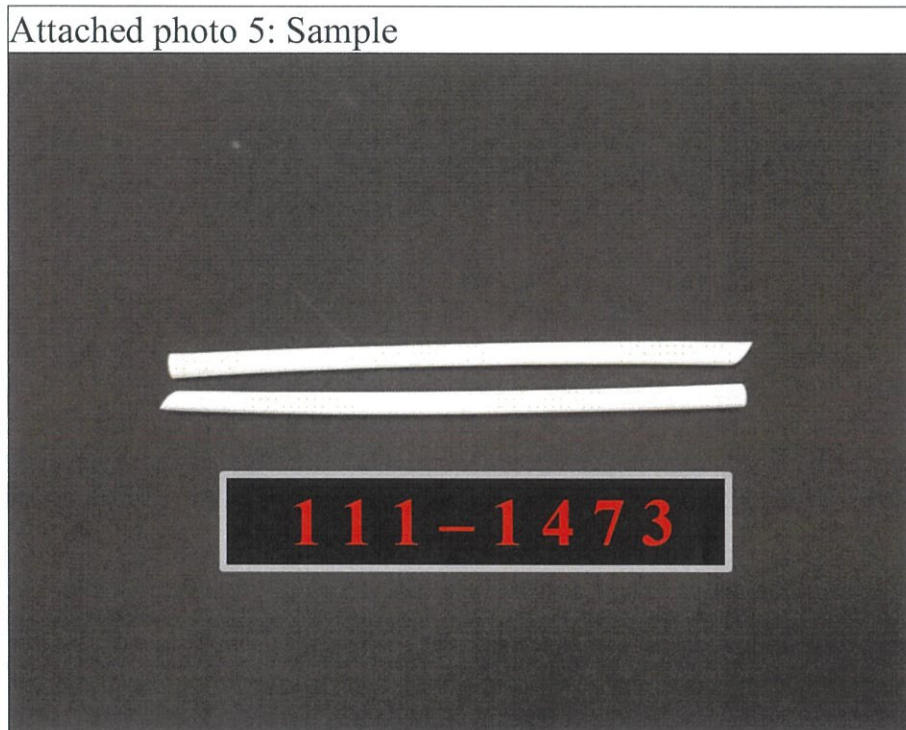


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Attached photo 5: Sample



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