

# IDENTIFYING PLASTIC PACKAGING POLYMERS IN WASTE

## Objective

This factsheet presents the microPHAZIR Analyser tool used during the pilot project to identify easily the plastic polymer composition in waste at waste generators, gathering sites and aggregators. This tool is portable, easy to use, reliable and fast.

## CONTEXT

In Vietnam, so far the sorting of waste is manual. There is **no automatic sorting plants** using near-infrared scanning. Therefore, the waste sorting is **not systematic**, is not necessarily based on the polymer type and its **efficiency** is unknown. Few informations are also available on the waste composition, including the sorted waste and the discarded waste.

## APPLICATION

The **polymer composition** of the plastic packaging wasted at households was measured using the **microPHAZIR** during a **survey** conducted at Long Thoi Commune, Nha Be district, HCMC, De-

**microPHAZIR**  
Analyzer

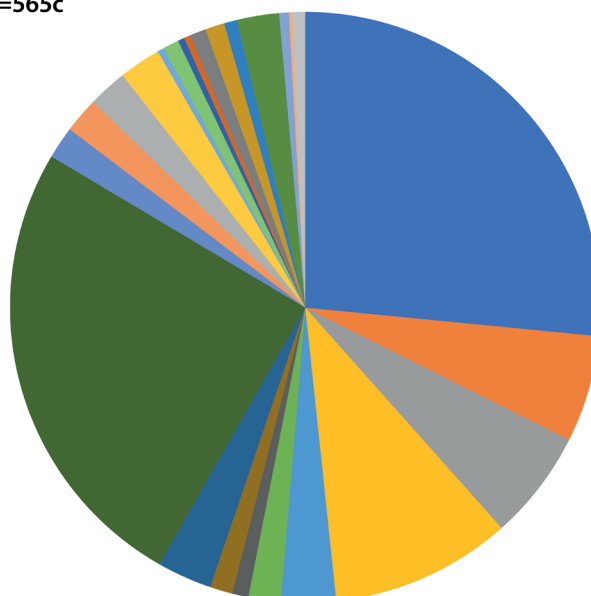
**Thermo**  
SCIENTIFIC



cember 2021. Packaging made of **PE, PET, and PP** accounted for **60% of the polymers** identified. The other polymers were mainly PMMA, PLA, POM, PS, and PVC.



**PLASTIC POLYMERS IDENTIFIED AT HOUSEHOLDS BY MICROPHAZIR**  
n=565c



- PE
- PP
- PA
- PMMA
- POM
- PI
- Nylon-ABS blend
- PEI
- PVC
- PC
- Rexolite PS
- PET
- PLA
- PS
- PETG
- PBT
- PA/ABS
- ABS
- PSO
- AS
- PEEK
- SAN
- PPO
- PPS
- Cellulose acetate
- PC/ABS
- Polysulfone

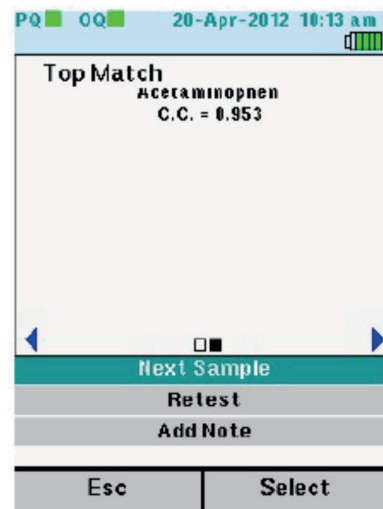
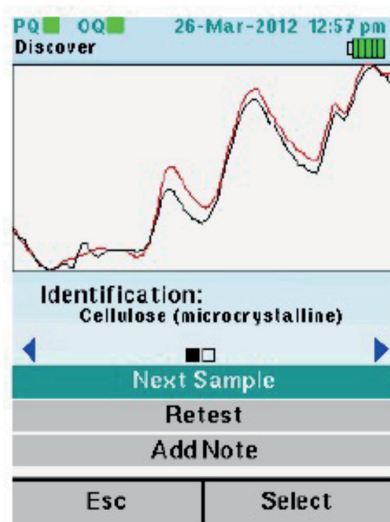


### PRINCIPLE

Each polymer has a specific **fingerprint** on the **infra-red** spectrum.

The machine, via a non-destructive near infra-red analysis, compares the fingerprint of the

sample to the known polymer fingerprints of its library and evaluates the **“matching” coefficient**. Within three seconds, the polymer can be identified.



### TECHNICAL ASSETS

– **31 common plastic polymers** can be identified by near infrared spectrometry : ABS, AS, CA, Nylon-ABS Blend, PA, PA/ABS, PB, PBT, PC, PC/ABS, PE, PEEK, PEI, PET, PETG, PI, PLA, PMMA, POM, PP, PPO, PPS, PPSU, PS, PSO, PU, PVC, PVDF, Rexolite PS, Polysolfone, and SAN

- **Fast analysis:** 3 sec
- **Matching coefficient** and **infrared spectra** given for each sample
- **Portable:** easy to use and transport
- Data can be **exported** in .txt and .pdf files.



The MicroPHAZIR was funded by PRO Vietnam and complimentary leased to IRD to conduct the survey under the pilot project supported by the Rethinking Plastics.



The pilot project Enhancing plastic packaging collection, sorting and recycling in Ho Chi Minh City was implemented by IRD Institut de Recherche pour le Développement and HAU Hanoi Architectural University under the 'Rethinking Plastics – Circular Economy Solutions to Marine Litter' project funded by the European Union (EU) and the German government through the German Federal Ministry for Economic Cooperation and Development (BMZ) and implemented by Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH and Expertise France.

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