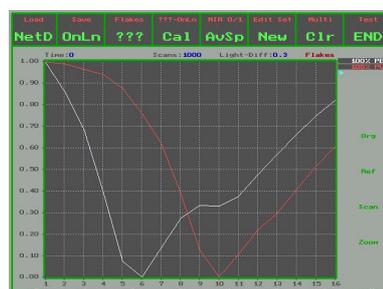


sIRoDrip – NIR-Spectrometer for fast Identification of PET-Flakes

With the near infrared spectrometry of the **IoSys units** it is now possible to identify non-dark plastic parts directly as **flakes, pellets, ground material** or **granulates** in a random sampling way in order to be able to determine very fast the quality, purity and the composition of the material. The primary application is the fast identification of PET parts in order to detect unwanted **contaminations like PVC**.

Based upon a sIRoCube measuring system the device includes the optical NIR-system, the computer, which controls and evaluates the identification process, the outside mounted power supplies, the blower unit as well as the channels with the vibration unit. Measuring parameters and timer settings can be selected by external keyboard or by the integrated LCD-touchscreen.

As an **optional feature** a battery operated **Mini-Plotter** for the printing of the results or an external **VGA-touchscreen** are available. (sIRoDrip-dimension: LxHxD in mm: 900 x 400 x 100, weight: 4 kg, Power supply: 100-230 VAC, 50/60 Hz).



The software enables detailed spectra viewing, loading, saving and editing. This possibility helps to develop own applications.

The basic principle of the method is the diffuse near infrared reflection spectroscopy whereby characteristic absorption behaviors of different polymer types are used in that spectral region. The polymer sample is radiated with a infrared light and the reflected light of the measuring focus is analyzed using a near infrared detector array.

For **plastic identification** the 1m long vibration channel is filled with up to 200g of PET Flakes. More material can be supplied sequentially by a hopper. Due to the vibration the plastic parts are falling from the first onto the second "supply channel" and pass - almost isolated - the measuring focus during their free fall into a collector box. Within milliseconds each flake



in the light spot on the attached reference ceramic plate is measured. Foreign materials such as PP, PE and PVC are blown out immediately into a removable safety net by three compressed-air blower nozzles. The separated parts can be examined thus afterwards individually. The number of detections as well as the percentage composition of PET and/or the impurity are indicated (in ppm or %). Depending on the flake properties the vibration frequency for isolation can be set either by software or manually adjusted at the vibration unit.

Polymer :	PET	PVC	???
-??? (x):	99.972	281 ppm	
Amount :	24881	7	222
+??? (x):	99.888	8.828	8.884



With the **sIRoDrip** it is possible to analyse within a few minutes **contaminations in PET-flakes independently of surface texture and humidity content**.

The calibration of the measuring system for other special applications (e.g. PP, PE, PS) is also possible on demand.

- ✓ **Purity control of bulk materials, preferably of PET flakes as also of granulates, ground materials and pellets**
- ✓ **Contact-free and non-destructive measurement**
- ✓ **Measuring parameters and vibration strength adjustable**
- ✓ **Separation of contaminations such as PE, PP and PVC via blower nozzles**
- ✓ **Timer-function (0-30 min.) for automatic operation**
- ✓ **Detection and documentation of mixing proportions**