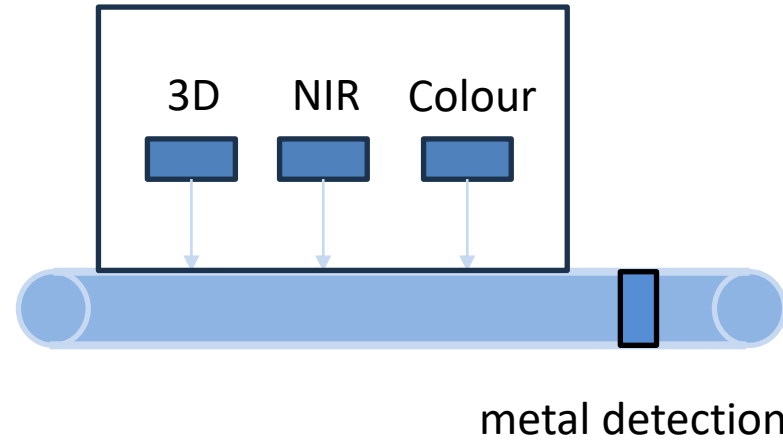
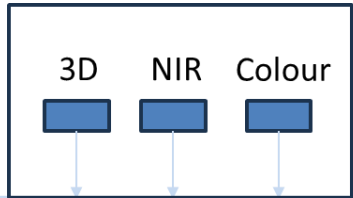




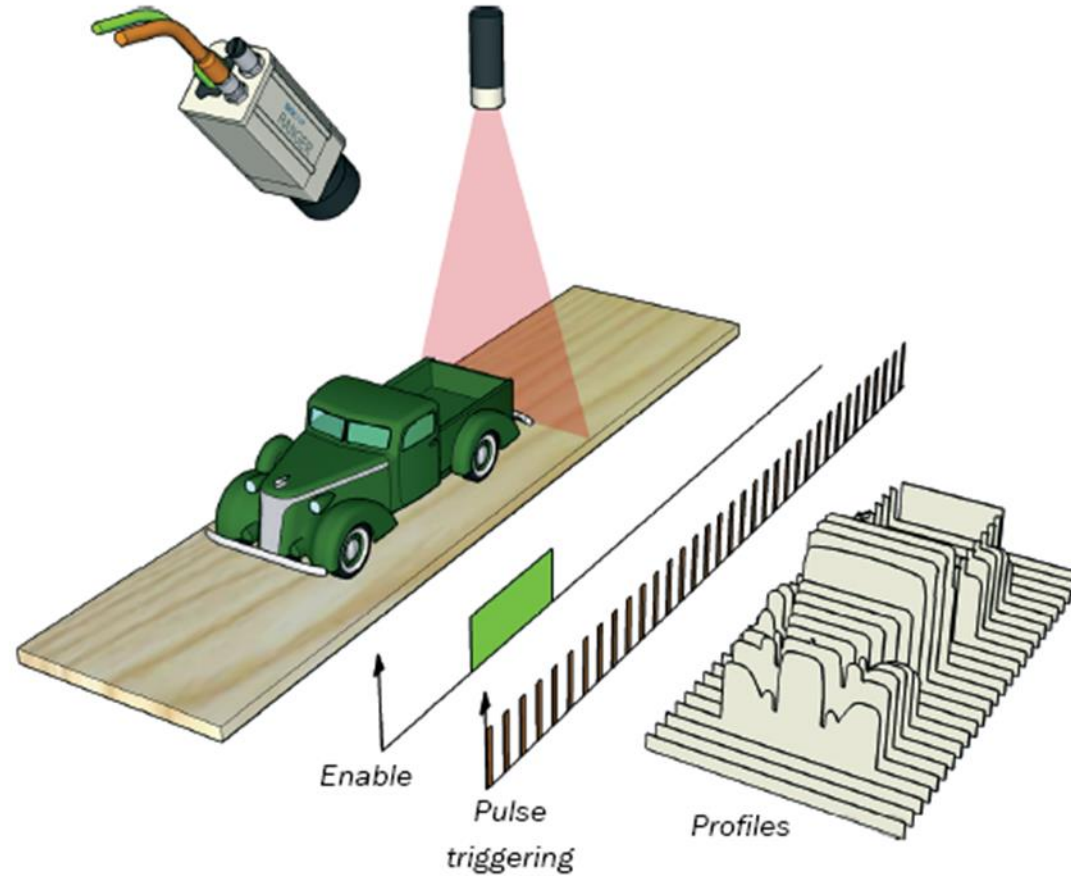
ANALYTICS WITH ALL SENSES



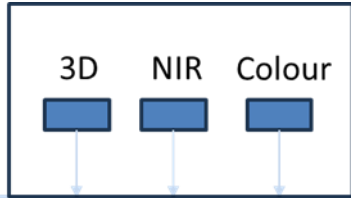




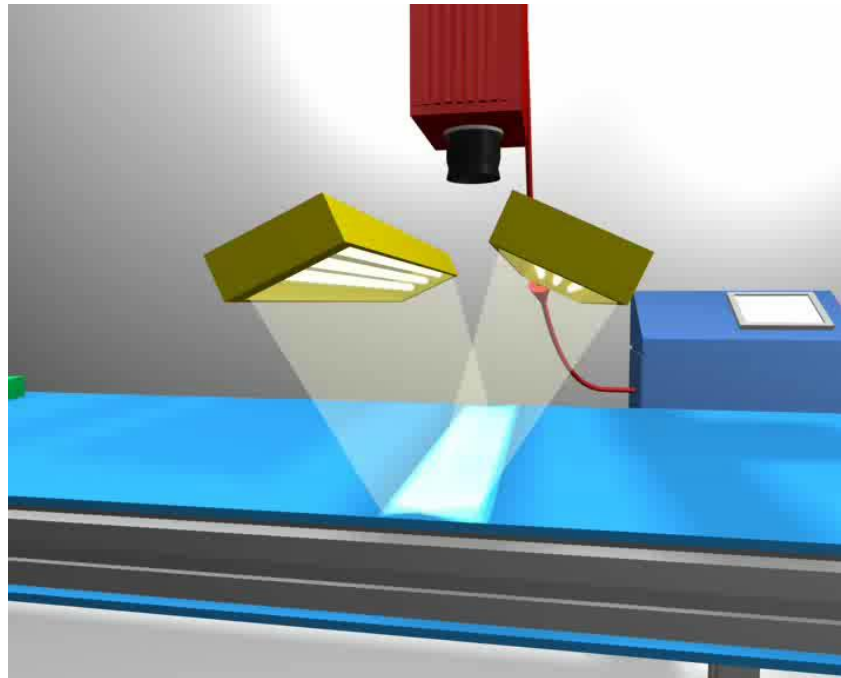
- **Size of object**
- **Volume of object**
- **Shape of object**



© Sick AG



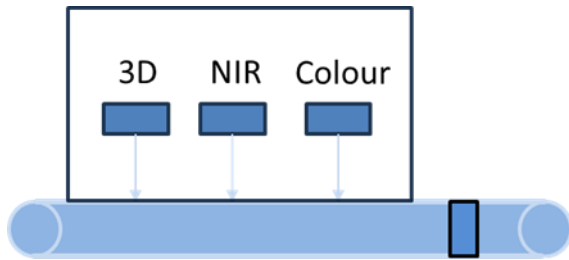
- **Material type**



© RWTH Aachen

- NIR detection is the most common sorting principle
- More units as a consequence of higher quality and recovery demands
- Very high spectral resolution for NIR detection (with 256 measuring points)
- High optical resolution with 320 measuring points over complete belt ($200 \text{ mm} / 320 \text{ points} = 0,6 \text{ mm}$)





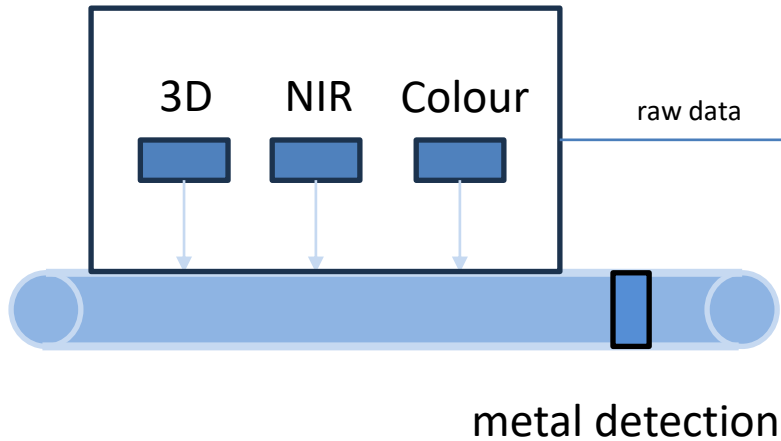
- Colour of object



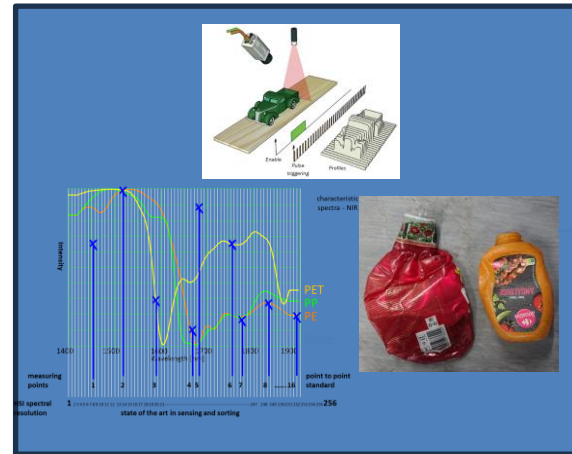
Hot objects for discussion (PET clear)



Basic module with sensor fusion

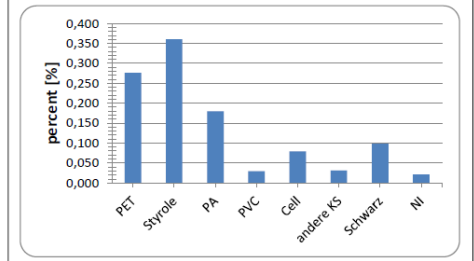
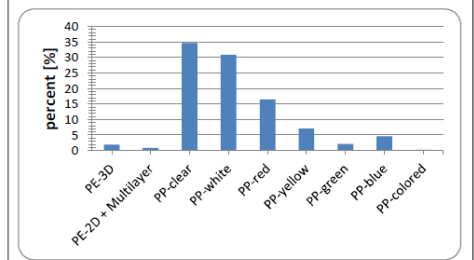


RTT-AI

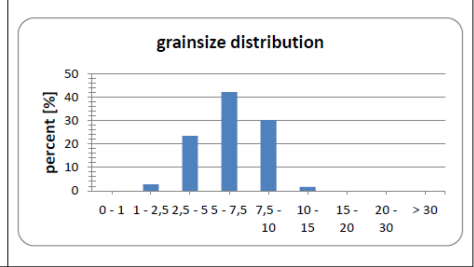


visualisation

Material	Composition [%]
PE-3D	1,933
PE-2D + Multilayer	0,860
PP-clear	34,708
PP-white	30,848
PP-red	16,530
PP-yellow	7,077
PP-green	2,100
PP-blue	4,607
PP-colored	0,260
PET	0,276
Styrole	0,360
PA	0,180
PVC	0,030
Cell	0,079
Others	0,031
Black	0,099
NI	0,021



Grainsize	Area [%]
0 - 1	0,00
1 - 2,5	2,75
2,5 - 5	23,37
5 - 7,5	42,07
7,5 - 10	30,17
10 - 15	1,64
15 - 20	0,00
20 - 30	0,00
> 30	0,00



The flakeanalyser is an NIR-Analysis-Device for fast and non-destructive quality control and material analysis of plastic regrinds.

DEVICE FEATURES

- AI-based analysis of regrinds and plastic flakes according to type of
 - material
 - object colour
 - volume
- simultaneous allocation of detected objects according to color and material
- statistical consideration of black and dark objects
- weight-related evaluation based on measured volumes
- determination of particle size distribution
- convertible to continuous measurement (inline version)
- modern and solid design
- intuitive operation via touch screen
- automatic output of protocols
- automatic archiving analysis results

TECHNICAL DATA

- | | | | |
|---|---|---|--|
| ■ Dimensions:
1.670 mm height
1.050 mm width
795 mm depth | ■ Weight:
approx. 250 kg | ■ Grain sizes:
2 - 30 mm | ■ Sample volume:
approx. 8 l |
| | ■ Connected load:
2,1 kW (230 VAC, 16A) | ■ Throughput:
approx. 250 g/min | |



FILLING

The sample material enters the unit via a feed hopper.

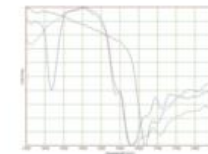


USER INTERFACE



ANALYSIS VIA NEAR-INFRARED SPECTROSCOPY

Sensor system with high-resolution hyper-spectral imaging technology captures characteristic spectrum.



RETURN

The analysed sample material is dispensed into a collection container after completion of the measurement.

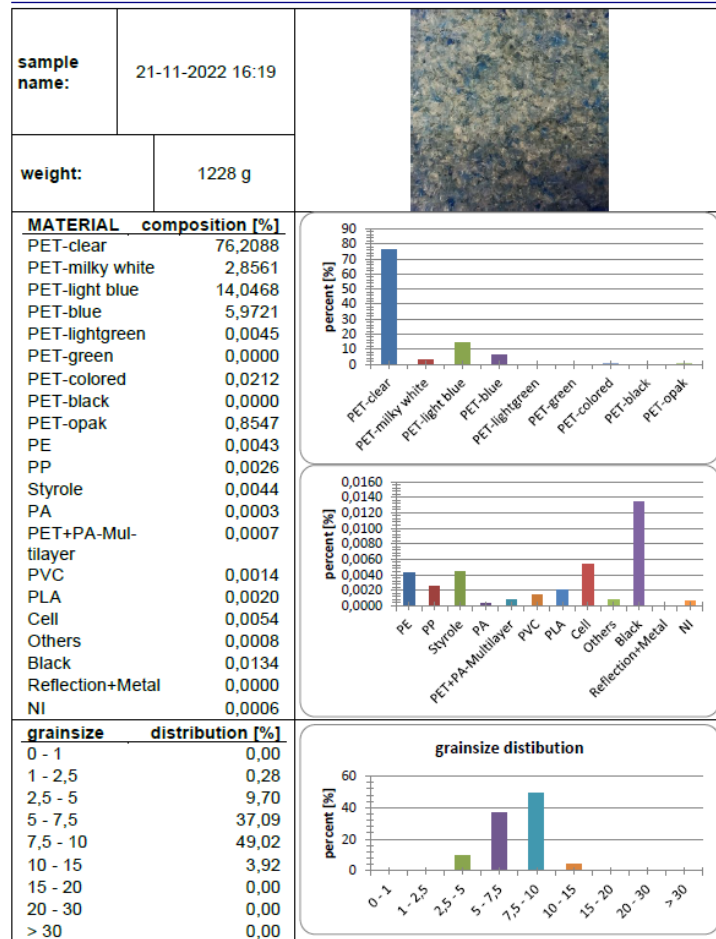
RESULT

The results are output via EXCEL, e-mail dispatch and label printer.



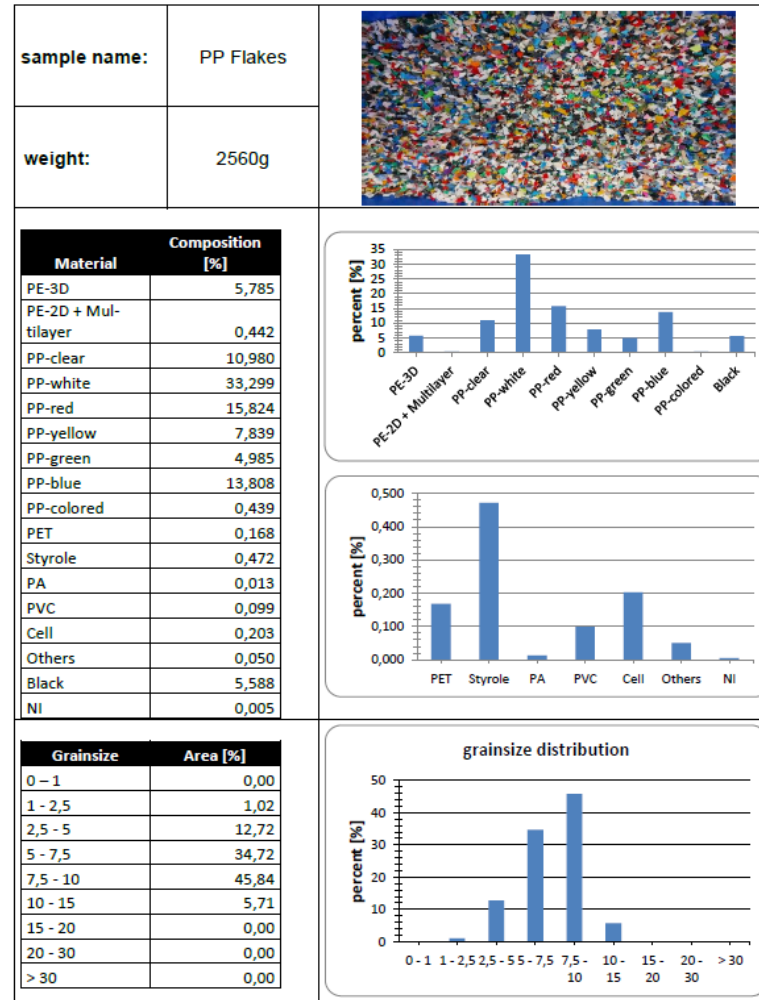
APPLICATION EXAMPLES

- Polyolefins
- Plastics in electronic scrap
- PET flakes



Other plastics include PC, PU

Page 2



Reference list flakeanalyser



- **AI-based inline analysis of material flows**
 - type of material
 - object colour
 - Volume of material flow
- **Fast non-destructive quality control**
- **Self calibrating**
- **statistical consideration of black and dark objects**



heatanalyser



imaging system for early detection of hot spots in material flows to prevent fires

flakeanalyser



multi-sensor analysis device for quality control and material analysis of plastic regrinds

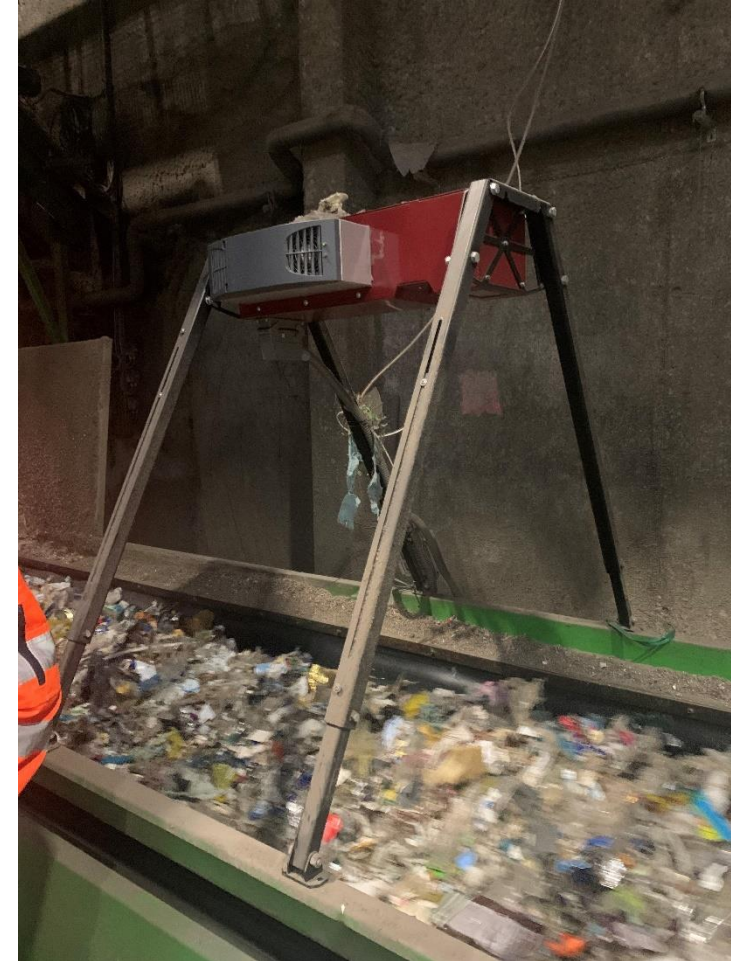
processanalyser

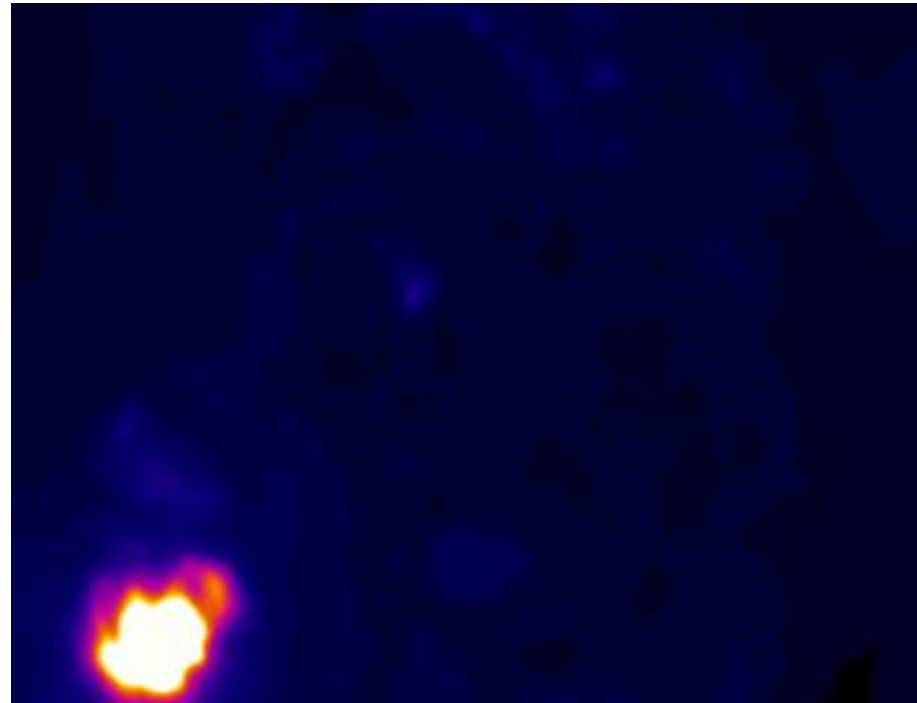


multi-sensor analysis device for quality control and material analysis of material flows



- The system detects the temperature of objects hidden in the heap
- Minimum object size is 5x5 mm
- 9 temperature measurements per second
- Output of the actual measured temperature
- Output of the temperature change of these objects over a defined period of time
- Output of the object size
- Output of the delta to the ambient temperature
- Self calibrating







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