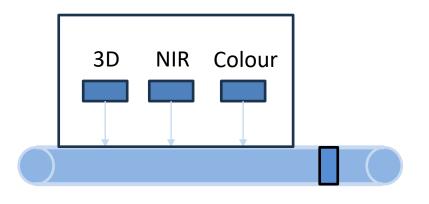




Basic module

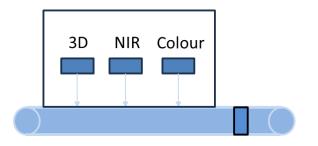




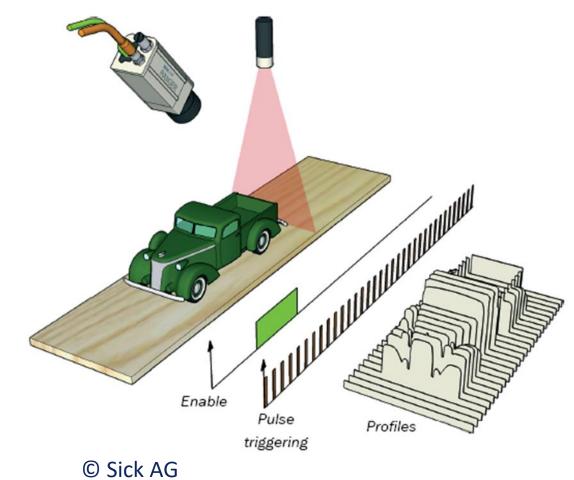
metal detection

Shape scanning 3D sensor



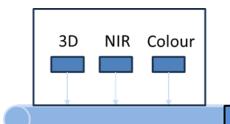


- Size of object
- **Volume of object**
- **Shape of object**

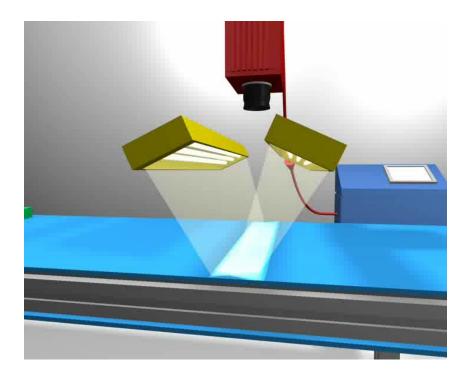


NIR detection with HSI system





Material type

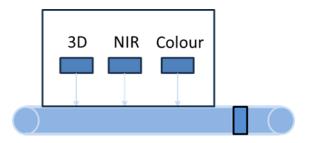


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- NIR detection is the most common sorting principle
- More units as a consequence of higher quality and recovery demands
- Very high spectral resolution for NIR detection (with 256 measuring points)
- High optical resolution with 320 measuring points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

HRS colour camera





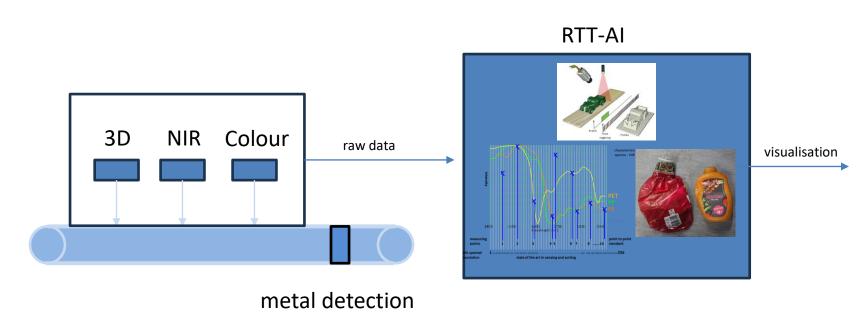
Colour of object



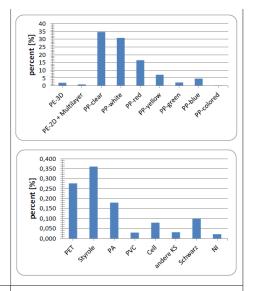
Hot objects for discussion (PET clear)

Basic module with sensor fusion

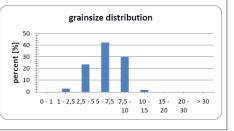




Material	Composition [%]
PE-3D	1,933
PE-2D + Mul-	
tilayer	0,860
PP-clear	34,708
PP-white	30,848
PP-red	16,530
PP-yellow	7,077
PP-green	2,100
PP-blue	4,607
PP-colored	0,260
PET	0,276
Styrole	0,360
PA	0,180
PVC	0,030
Cell	0,079
Others	0,031
Black	0,099
NI	0,021



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



flakeanalyser 2.0



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

DEVICE FEATURES

- Al-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
- Connected load: 2,1 kW (230 VAC, 16A)
- Grain sizes:
- 2 30 mm
- approx. 250 g/min

Sample volume: approx. 81

■ Throughput:

FILLING

The sample material enters

the unit via a feed hopper.

.111.

flake**analyser**

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.

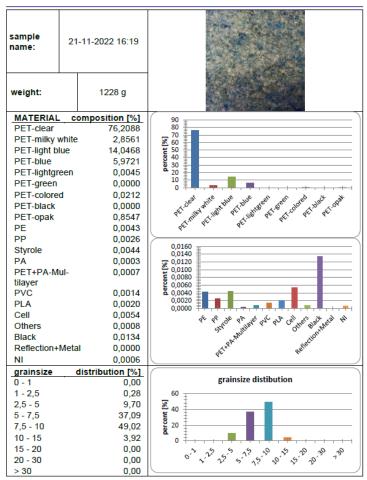
APPLICATION EXAMPLES

- Polyolefins
- Plastics in electronic scrap
- PET flakes

flakeanalyser 2.0







Other plastics include PC, PU Page 2



sample name:	PP Flakes	
weight:	2560g	
	Composition	35 ₌
Material	[%]	₹ 30 ± 25 ±
PE-3D	5,785	# 20 #
PE-2D + Mul- tilayer	0,442	2 20 10 10 10 10 10 10 10 10 10 10 10 10 10
PP-clear	10,980	
PP-white	33,299	PETO A PROBLEM PRECION PRINTER PRECION PROBLEM PROBLEM PROCIONES BOOK
PP-red	15,824	SE WRITING BAYE, BAYER, BASE, BASE BAYER, BA
PP-yellow	7,839	£20*
PP-green	4,985	94
PP-blue	13,808	
PP-colored	0,439	0,500
PET	0,168	0,400 ±
Styrole	0,472	% 0,300 to 0,200 to 0
PA	0,013	0,200
PVC	0,099	
Cell	0,203	0,100
Others	0,050	0,000
Black	5,588	PET Styrole PA PVC Cell Others NI
NI	0,005	
		grainsize distribution
Grainsize	Area [%]	
0-1	0,00	50 1
1 - 2,5	1,02	40
2,5 - 5 5 - 7,5	12,72 34,72	<u>×</u> 30 <u>+</u> 30 ± 30 ± 30 ± 30 ± 30 ± 30 ± 30 ± 30
7,5 - 10	45,84	£ 30
10 - 15	5,71	a _
15 - 20	0,00	10
20 - 30	0,00	0 =
> 30	0,00	0-1 1-2,52,5-55-7,5 7,5- 10- 15- 20- >30 10 15 20 30

Reference list flakeanalyser

























processanalyser



- Al-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



PRODUCTS



heatanalyser

flakeanalyser

processanalyser







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

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

heatanalyser



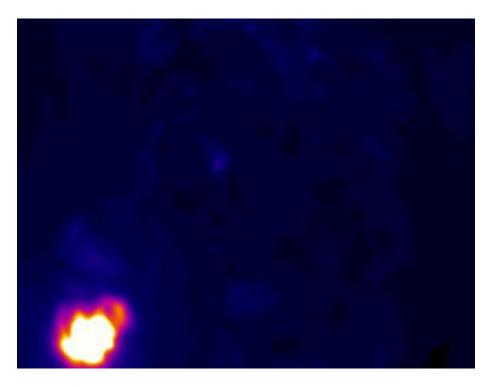
- The system detects the temperature of objects hidden in the heap
- Minimum object size is 5x5 mm
- 9 temperature measurements per second
- Output of the actual measured temperature
- Output of the temperature change of these objects over a defined period of time
- Output of the object size
- Output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



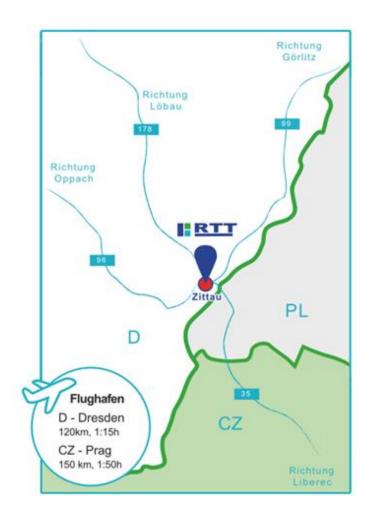
heatanalyser











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