

binder+co

clarity

sorting solutions for light packaging





TASK



Fossil raw materials are running out. Dump capacities are reaching their limits. General legal conditions are changing constantly. Hence, the need to use secondary raw materials is increasing.

The materials are collected in a great variety of systems for recycling. Above all, the preparation of light fractions is a major challenge in the recycling industry. Besides sorting mixed materials such as paper and coated and uncoated paperboard containers in a great variety of combinations, the correctly sorted separation of plastics is taking a central role.

Waste streams are broken down into individual material streams in the recycling process. The purer that a fraction is, the better it can be fed back into the production cycle.



SOLUTION



Binder+Co has decades of experience in the mechanical and optical preparation of plastics. The unique CLARITY recycling concept was developed in harmony with the requirements of the international recycling market.

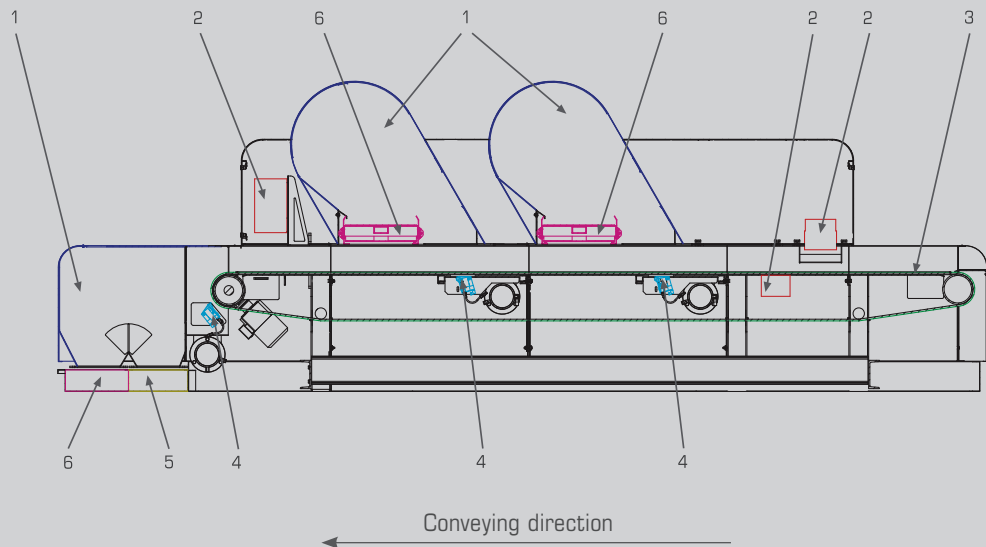
Plastics like PET, PE, PP, PVC or liquid packaging boards as well as paper and paperboard containers differ in their chemical and physical compositions and can be identified using different spectral information. Specially developed NIR sensors are used for this purpose in CLARITY that exploit this effect by analysing the reflected infrared light spectra.

CLARITY can also be equipped with RGB colour cameras. They recognise colour and geometric information. With it, pure material fractions can be separated specifically according to their colours. In addition, many plastics are transparent or non-transparent. In order to also be able to meet this special requirement, the machine can detect and analyse both the reflected surface information as well as the light that shines through in the transmission process.

An additional add-on with a non-ferrous sensor makes sure that the material fractions that make it through to recycling are free of metallic contamination.



TECHNOLOGY



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|---------------------------------|-----------------------------------|
| 1 – Ejection and expansion room | 4 – Blow-off belts |
| 2 – Sensor technology | 5 – Shaft for throughput fraction |
| 3 – Recognition belt | 6 – Discharging device |

The feed material is conveyed into the machine on a perforated sorting conveyor belt. The sensor system, which has been specially adapted to the application in hand, scans the singled material stream in different areas of the sorting line. The blow-out units are located under the carrying run of the conveyor belt. At the correct place and time, they blow off the materials to be separated into the relevant ejection box by means of a precise stream of compressed air. Practically all kinds of plastics, as well as paper, cardboard and composites, such as drinks-packaging, are identified by means of the high-performance computer system. The identification of the material is carried out with the help of a spectral analysis of the reflected infra-red light, and RGB cameras recognise geometric and colour information.



TECHNOLOGY



CLARITY is a revolutionary recycling sorting system that produces up to six different pure fractions. The machine is extremely flexible with respect to controlling and choosing sorting recipes. The way the system is installed can be varied according to the number of fractions to be separated, depending on customer requirements. In this way, up to six final products can be recovered in one processing step. Additional equipment, such as suction and dust removal systems, can be arranged according to requirement. Working widths of 1400 and 2000 mm are available for an optimum recovery process co-ordinated with throughput capacities.

The installation of the CLARITY can be flexibly adapted to local requirements regarding the discharge direction of the individual materials recovery fractions.

Specification of the sorting parameters and analyses take place by means of a PC with touch screen. Various pre-programmed recipes for combining the sorting parameters can be activated by means of the touch screen. Several CLARITY units can be controlled by means of a higher-level control station. To take into account an operator's policy of keeping personnel to a minimum, remote maintenance can be carried out using a modem and data line.



OPERATION



Binder+Co's know-how in the field of optical sorting is demonstrated in the intelligent choice of materials and the perfected technical conception of CLARITY.

CLARITY has been constructed in a well-proven modular system so that integration in an existing plant presents no problems. The modern design concept is aimed at securing the highest degree of ease of use.

CLARITY has been designed for fully automated sorting operation – thus it does not need its own operating personnel. The sorting quality can be flexibly adapted not only to the current feeding material but also to the desired end product. The user-friendly touch screen considerably simplifies manual operation and checking the machine. Moreover, breakdowns and errors are graphically represented on the monitor.

Special attention in the design of CLARITY was given to simple handling concerning assembly and dismantling of spare parts.

The standard for the future of the preparation of different lightweight materials has been set. Constant research and development has top priority at Binder+Co. In the process, the company works together with the best partners. That makes Binder+Co into a competent partner for the recycling industry.

- Processing Technology
- Environmental Technology
- Packaging Technology

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Binder+Co's know-how in the field of processing of bulk goods and recycling materials is demonstrated in its wide range of special machines which are deployed globally in the raw materials, construction and chemical industries. The company supplies turn-key plants, from planning and design to production, assembly and commissioning. Highly qualified personnel process metal into intelligent machinery and structures. The special strength of this Austrian company lies in its more than 50 years of experience in creating customised solutions for specific customer requirements.

CLARITY is the name of the most efficient light waste materials processing by Binder+Co. Compact machines sort light waste materials to purest valuable material. Efficient technology packaged in an exciting design.

TECHNICAL DATA CLARITY multiway for light packaging

Material and color sorting

Sorting width	1000 mm	2000 mm
Capacity*	2,1 t/h	3 t/h
Valves**	56	80
Grain sizes	40 - 300 mm	
Sensor systems	VIS (RGB) reflection NIR metal recognition	

*dependent on the respective task and on the specific bulk density of the main fraction

**maximum number of valves per machine