

**UCC**  
by HydroDyn®

# THE COMPACT ROUTE TO CLEAN PLASTICS



# PLASTICS RECYCLING REDEFINED

## From problem to profit

Plastics are an indispensable part of our daily lives – and they pose one of the greatest environmental challenges faced by our planet. So far, the recycling industry for PET, PE, and PP has not succeeded in extracting raw materials from plastic waste with qualities to rival those of new materials.

But now there is a process that fills precisely this void: the Cleaner Technology from HydroDyn® Systems. The patented heart of this system is a hydrodynamic friction washing step. With this method, for the first time recycled plastics achieve a level of quality that makes them equal substitutes for new plastics – at a fraction of the cost.

The advantages of the HydroDyn® process as compared with today's standard:

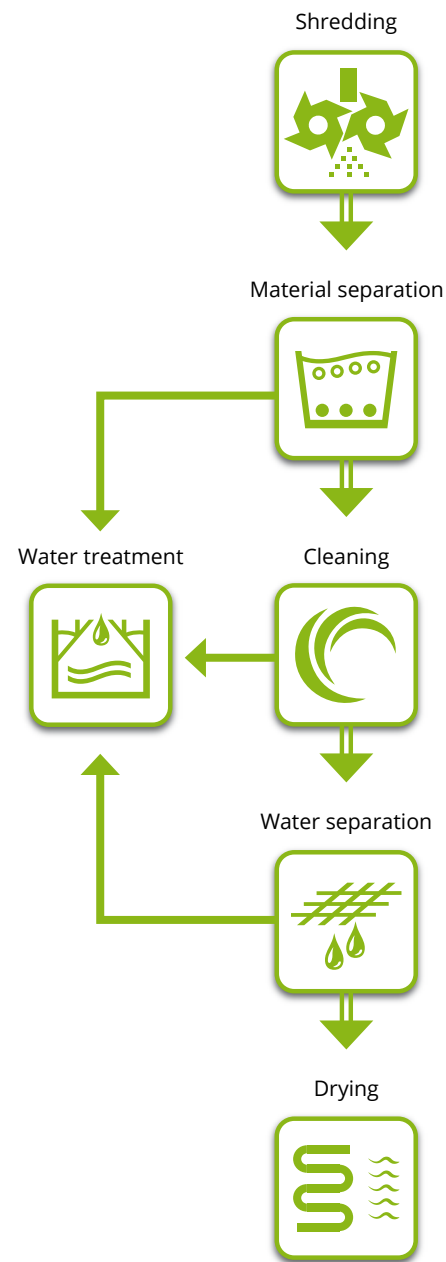
- ✓ Enormous increases in reclaimed materials
- ✓ Little to no waste
- ✓ No emissions
- ✓ No use of chemicals
- ✓ Simpler logistics
- ✓ Dramatic water savings
- ✓ Up to 50 percent less energy required
- ✓ Highly purified ground materials or refined re-granulates

The time is ripe for the most environmentally friendly, effective, and economical plastics recycling method ever.



# THE MODULAR SYSTEM OF OPTIMUM SOLUTIONS UCC from HydroDyn®

## Efficiency and effectivity - the building blocks:



HydroDyn® technology is setting a new quality standard for the recycling industry. In addition to the high purities of re-granulates first achieved with HydroDyn®, the system provides yet another important advantage: the compact design of its components. UCC – Universal Compact Cleaner – is the name of the new container units from HydroDyn®, providing customized enhancement for every recycling plant.

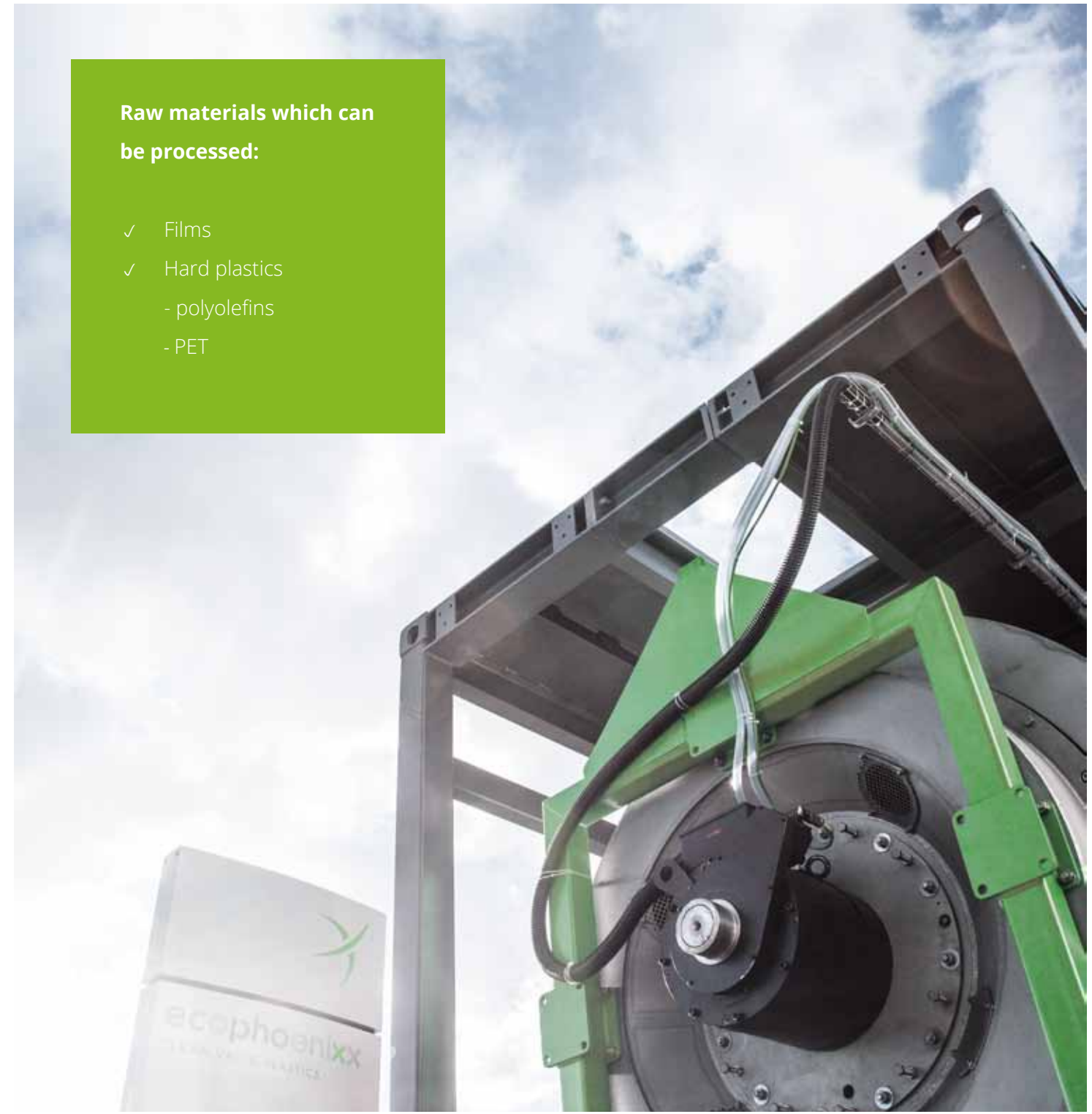
Each container fulfills a specified task. This makes it possible, on the one hand, to construct a complete recycling plant in limited space with components perfectly attuned to one another and, on the other hand, to install the container units to enhance and optimize existing plants at the lowest possible cost.

### UCC component advantages at a glance:

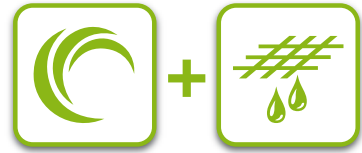
- ✓ Small number of interfaces allows for trouble-free, quick integration
- ✓ Compact design saves space
- ✓ Plant is ready for operation within a few days
- ✓ Optimum choice for quick retrofitting
- ✓ Individually arranged for each customer

### Raw materials which can be processed:

- ✓ Films
- ✓ Hard plastics
  - polyolefins
  - PET



# INCOMPARABLY CLEAN AND COMPACT: **TWB I**



The Turbo Washing Box I (TWB I) forms the compact core of the HydroDyn® system. Using the HydroDyn® principle of friction cleaning, even stubborn contaminants such as adhesive labels are removed from plastics completely. This takes a heavy load off the melt filtration system of the granulate extruder.



Innovative slurrp intake allows the processing of flakes of any bulk density. In addition, the TWB I allows operation at high consistencies, handling solids consistencies of up to 10% depending on the bulk density of the raw material. This significantly reduces process water volumes.

Material is removed via a phase separator equipped with a flushing device. The phase separator is fitted with a vibrating screen to remove heavy materials from the process water. Process water undergoes treatment in a closed cycle. During subsequent mechanical drying, a cascade centrifuge with pneumatic ejection is utilized.

# ONE STEP CLEANER: TWB II



For handling severely contaminated raw materials, the two-stage Turbo Washing Box II is recommended (TWB II). In addition to the Turbo Washing Box I (TWB I), this variant also includes the H1 HydroCleaner. In this cleaning step, loosely adherent contaminants are removed in low-consistency operation. Since the H1 HydroCleaner works without friction, it is particularly energy-efficient.



## The TWB II includes:

- ✓ Rotation pendistor
- ✓ HydroDyn® F1 cleaner
- ✓ HybridFriction F1 cleaning tool
- ✓ HydroDyn® H1 cleaner
- ✓ Phase separator
- ✓ Process water collecting tank
- ✓ Mechanical dryer
- ✓ Vibrating screen
- ✓ Container frame
- ✓ Switching cabinet and controls

The particular advantage of the TWB II two-stage cleaning process is that this compact system can profitably handle the processing of even extremely contaminated wastes. And so, although less expensive starting materials are used, the final products nevertheless easily achieve high purity levels comparable to those of new materials.



# MEET THE TEAM



## Perfect Grain Preparation (PGP)



The heart of the PGP system box is the HydroDyn® HybridGrinder (HHG), a newly developed granulator designed to precisely fulfill the requirements of the HydroDyn® washing system. The flakes, initially 100 to 200 mm in size, are ground to a target grain size of 10 to 30 mm.

The upstream ValueSeparator effectively protects the HHG from impurities such as stones and metals. A discharge conveyor system and downstream de-watering screw reduce the moisture content of the flakes to a level optimum for further processing in the HHG.



## Thermal Drying Unit (TDU)



The TDU system box is a thermal high-performance dryer for universal use in drying hard plastics and films. Films with initial moisture levels between 10 and 15 percent are dried to residual moisture contents of 1 to 3 percent at a throughput of up to 1.25 tons per hour. The standard version comes equipped with a gas burner. Optionally available is an electric air heater with analog performance profile. A special feature of the TDU is extremely convenient maintenance, utilizing the hinged air duct port located on the side.



## Water Treatment Unit (WTU)



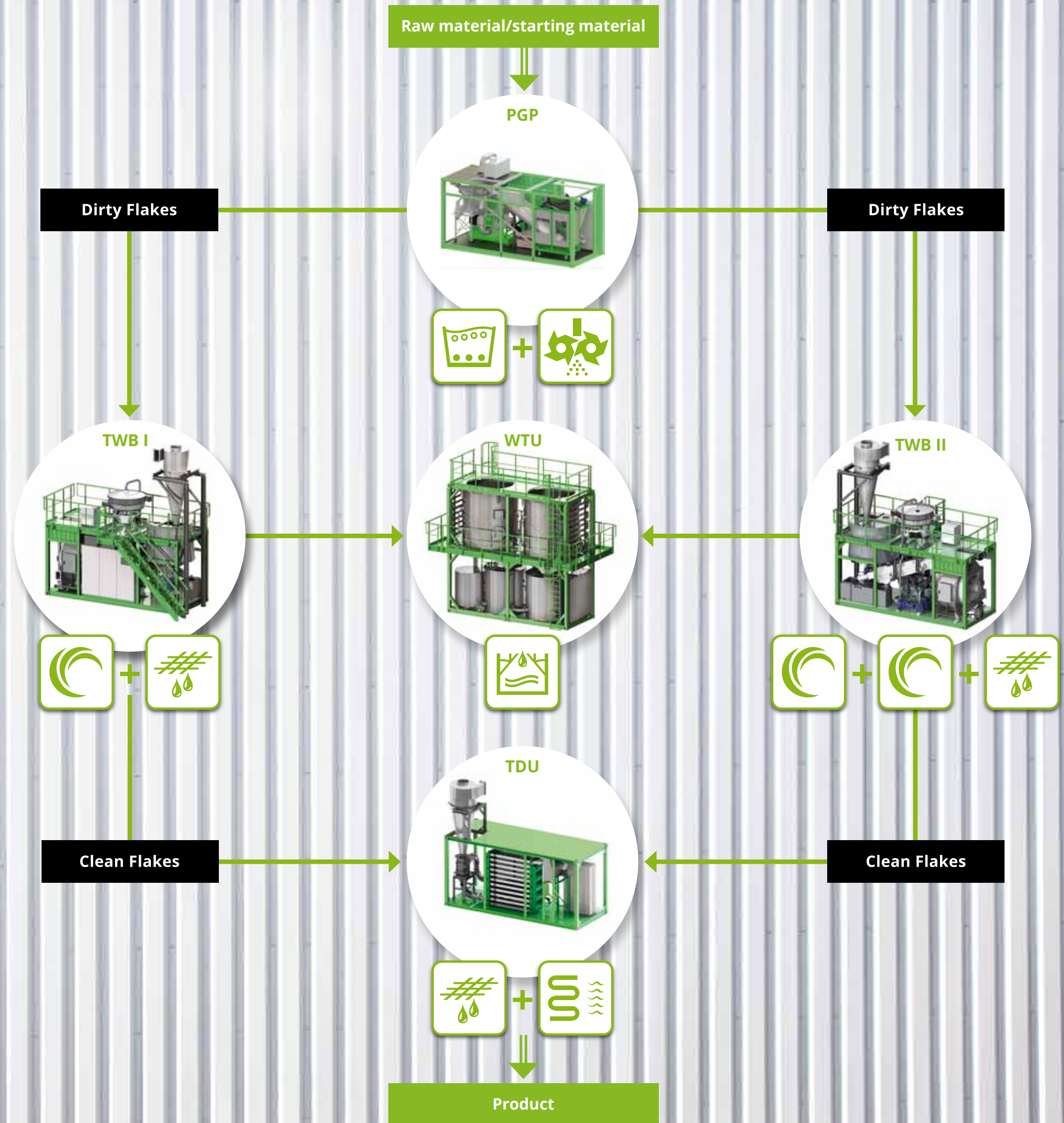
The WTU system box is a full-flow process water cleaner including a storage tank which works under the principle of two-stage flotation. The system also doses splitting and flocculating agents, which act to turn the solid wastes into floatable agglomerates. The floatable material is brought to the surface of the container with the aid of fine air bubbles and then removed by a collector in the form of a thin slurry. The result is process water almost entirely free of solids. The WTU consists of two containers arranged on top of one another and is available in two sizes. Perfect cleaning of process water is essential in order to achieve the highest possible product purities and to minimize wastewater.



# UNSURPASSED TEAMWORK

# UCC

by HydroDyn®



Solo and as a team: Each container covers one work step in the process. The HydroDyn® UCC system is thus equally suitable for installation in new industrial washing plants as for installation as part of retrofitting existing plants to improve process quality and cleaning efficiency.



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