



# THE CLEANEST WASTE EVER

HYDROCLEANER  
RECYCLING TECHNOLOGIES  
TO CLEAN ANY TYPE OF  
OF PLASTIC WASTE



# PLASTIC RECYCLING

## GOING DOWN NEW AVENUES

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### HYDRODYN OFFERS A CLEANING AND PURIFYING SOLUTION EVEN FOR HEAVILY SOILED PLASTIC WASTE.

Whether for chemical recycling or mechanical recycling, HydroDyn technology makes it possible to achieve “purified” polymer qualities in the most simple way.







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# ABOUT US

## BRINGING ECOLOGY AND ECONOMY TOGETHER

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The HydroCleaner from HydroDyn Systems is a globally patented, unique technology that enables new ways of recycling plastic. In the world of waste, the HydroCleaner transforms even heavily soiled and unsorted plastic into a marketable, clean raw-material feedstock.

HydroDyn is active in deinking and – as a next step – to produce food-grade recycled plastic. This technology is one of the missing pieces of the puzzle on the path to a truly circular economy, driven by the converter and brand-owner industry.

When it comes to recycled plastics produced with HydroDyn technology, qualities are realized that the recycling world has considered impossible until now.



# OUR TECHNOLOGY, YOUR BENEFIT

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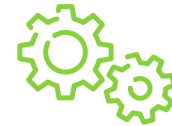
## CLEANING QUALITY

Transforming waste to an internationally marketable raw-material feedstock.



## PURIFYING QUALITY

Transforming raw-material feedstock to purified polymers, free from VOCs.



## OPTIMAL PROCESS

Action is taken from a process perspective, not from a machine-builder perspective.



## CUSTOMIZED

HydroCleaner tools can be customized to the need of raw materials and target polymers.



## ECONOMICAL

Creating value in a way that all stakeholders can profit from.



## ECO-FRIENDLY

No hazardous waste and emissions.

# HYDRO CLEANER

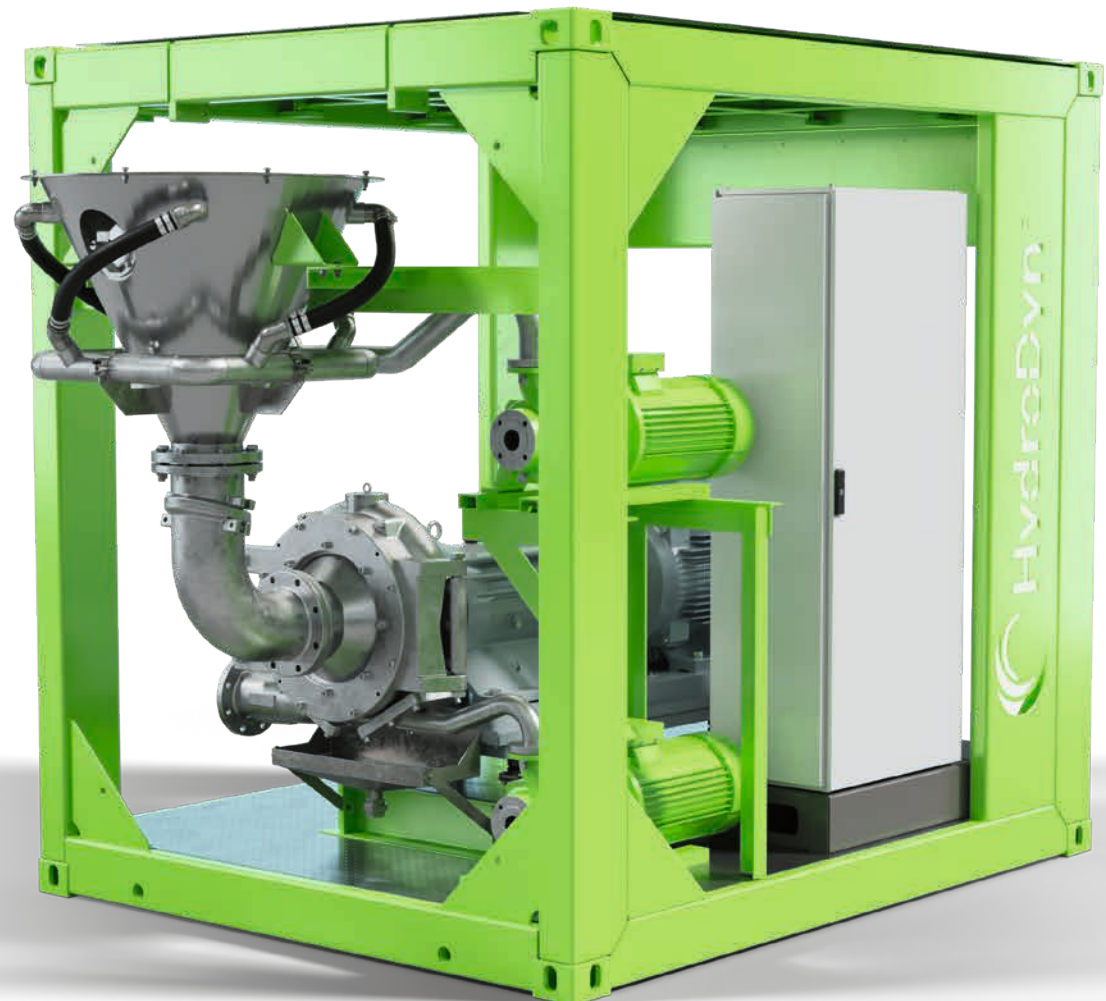
## THE CLEANEST WASTE EVER

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The HydroDyn process sets new standards for the purity of recycled plastic. It is based on a type of friction that can be precisely dosed (hydrodynamic surface friction).

This principle, familiar from the wood, paper, and metals processing industries, is applied in plastic recycling for the first time in the HydroCleaner from HydroDyn.

In combination with a highly turbulent water flow, the plastic waste is purified of all attached and adhering particles and contaminants with great effect.





The following raw materials can be processed by the HydroCleaner reaching high levels of purity in the end product:

- ✓ PE-LD post-consumer films
- ✓ PE-LLD stretch films
- ✓ PE-LD agricultural films
- ✓ PE-HD and PP films
- ✓ PET bottles
- ✓ Mixed PET packaging
- ✓ PP rigids
- ✓ HDPE rigids
- ✓ PA fishing nets
- ✓ PP big bags
- ✓ PS polystyrene
- ✓ Mixed plastic

# HYDRO CLEANER

## APPLICATIONS

**HYDRODYN  
CUSTOMERS  
ARE ...**

**COLLECTION SCHEMES**

**WASTE MANAGEMENT COMPANIES**

**MRF OPERATORS**

**PRF OPERATORS**

**LANDFILLS**

**RECYCLERS**

**CONVERTERS**

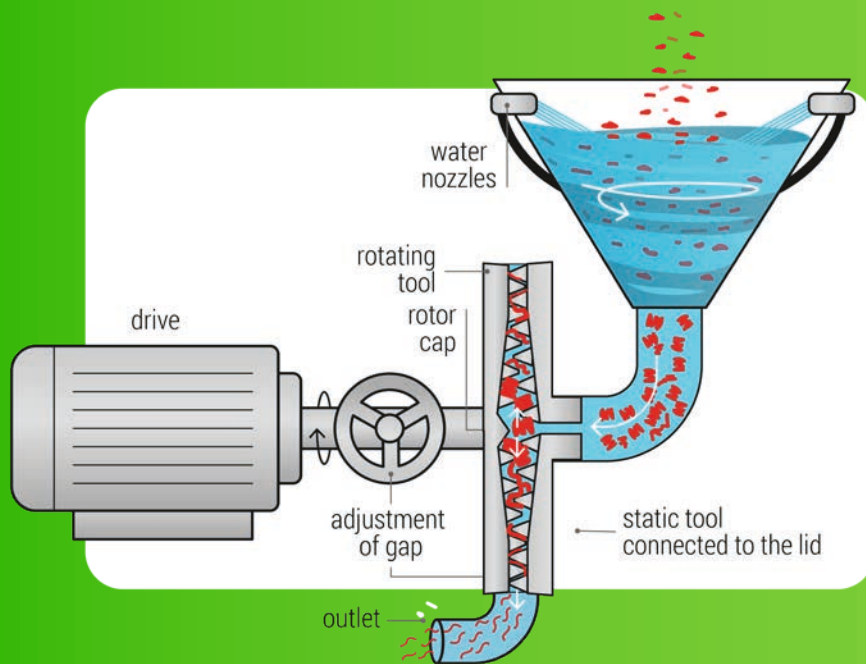
**BRAND OWNERS**

**RETAILERS**

# HYDRO CLEANER

## HOW IT WORKS

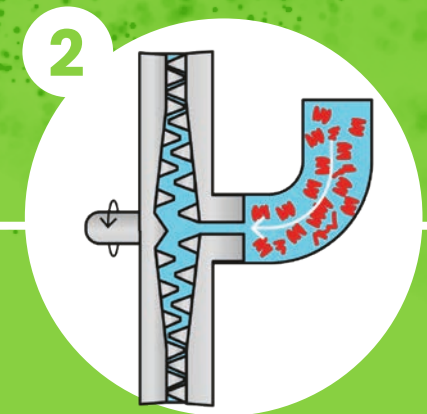
THE PATENTED HYDROCLEANER, WITH ITS FLEXIBLE TOOLS, CLEANS UP TO 200 M<sup>2</sup> PER SECOND IN ONLY ONE PROCESS STEP.



### THE HYDRO CLEANER AT WORK



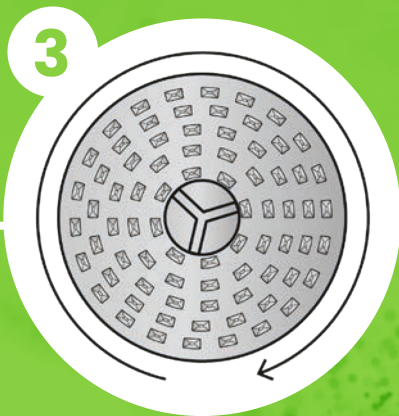
Water flows into the Hydro Flush Feeder. Flakes fall into the vortex and are rinsed downward.



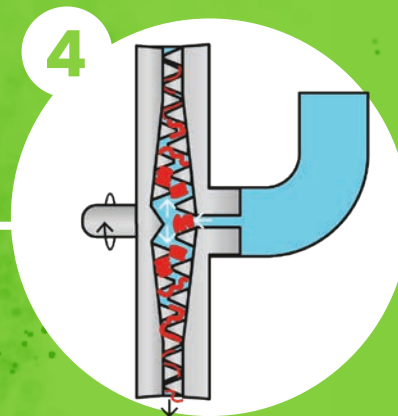
Flake water emulsion passes through an opening into the cleaning gap.



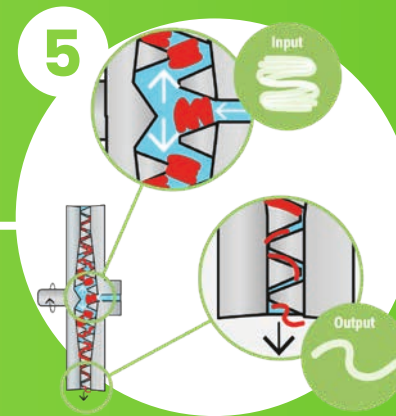
100% OF THE FLAKE SURFACE IS  
TOUCHED BY FRICTION.



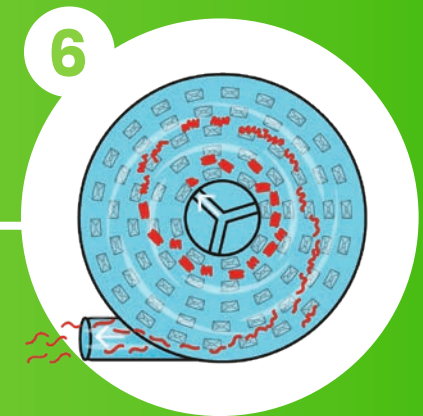
Emulsion hits the rotor cap of the rotating tool and is evenly distributed.



Flakes are aligned parallel to the teeth in the infeed zone. Gap (0-30 mm) becomes narrower and narrower and flakes are singulated.



Tools work on the entire flake surface and remove the dirt by friction and hydrodynamic water turbulences.



Flakes move outward in a spiral by passing the gap between the teeth of rotor and stator.

# HYDRO CLEANER

MANY TYPES OF DIRT, ONE CLEAN SOLUTION





## SPECS

Create weak points in the material and lead to premature material failure.



## GELS

Reduce the visual quality of the application.

# HYDRO CLEANER

## THE CLEANEST OUTPUT ON THE MARKET

### 100 % PURE – 100 % BEST QUALITY

After cleaning with the Hydro Cleaner, the surface of the plastic flakes are free of all contaminants.

The special feature: specs and gels are also no longer detectable on the film, in contrast to usual recycling results on the market.

This produces a plastic with almost the same quality as virgin plastic – 100% as good as new.



Agricultural LLD-PE Film



HDPE/PP



PCR/Retail LLD-PE  
& LD-PE



Big bags



Commingled plastics  
from MRF/PRF



LDPE film with printing



# HYDRODYN

## SYSTEM UNITS

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### SOLO OR AS A TEAM : COMPACT UNITS FOR COMPLEX TASKS

HydroDyn goes one step further in terms of convenience, efficiency, and simplicity with its container-based design. Each system unit covers one step in the process. The units are designed to reduce space requirements and are ideally suited for retrofitting.

Designed as compact and fully functional units, the containers have a significantly lower number of interfaces. This allows production lines not only to be set up in small spaces but also to take up production in an unusually short time. Since the containers undergo a complete test run at the factory before delivery, commissioning time is reduced even more.

The system units can work solo or together as a team to reach new levels of output quality.





# SYSTEM SOLUTIONS

## PLASTIC RECYCLING MADE EASY

### HYDRODYN SYSTEM SOLUTIONS, COMPARED TO TRADITIONAL RECYCLING, ...

- ... are standardized.
- ... need less than 1/3rd of footprint.
- ... cost less than 2/3rd of OPEX.
- ... provide a corresponding Smart Process Water treatment.
- ... guarantee less than 100 ppm impurities.
- ... offer with UltraPure technology the next step to food grade.

### EACH HYDRODYN SYSTEM IS A STAND-ALONE PROCESS STEP

Systems can be easily combined to the need of  
raws input and polymer output



# CLEANING WASTE TO RAW MATERIALS – THE DIRTY PART OF RECYCLING

## HYDROCLEAN TWO SYSTEM SOLUTION FOR PCR FILM FROM CURBSIDE

**HYDROCLEAN TECHNOLOGY ACHIEVES HIGH THROUGHPUTS  
AND RESIDUAL MOISTURE < 2% WITH FILM. THIS IS UNIQUE AND  
MAKES ADVANCED MECHANICAL RECYCLING FEASIBLE.**

HydroClean achieves reduced purifying efforts on Pyrolysis Oil.  
Optional UltraPure achieves Deinking and VOC reduction  
as required for food grade.



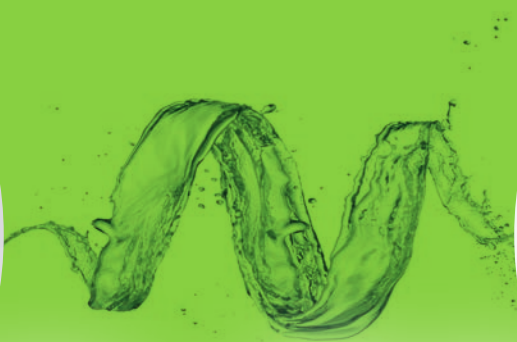


# PURIFYING RAW MATERIALS TO NEW POLYMERS – THE CLEAN PART OF RECYCLING

## HYDROPURE TWO SYSTEM SOLUTION FOR PCR RIGIDS FROM CURBSIDE

**HYDROPURE IS BETTER IN OPEX AND POLYMER QUALITY  
THAN ANY TRADITIONAL TECHNOLOGY**

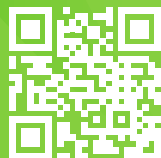
HydroPure brings the breakthrough in chemical Recycling. Optional  
UltraPure Technology enables In-Mold-Label Removal and  
Color Sorting for advanced mechanical Recycling.



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