



THE CLEANEST WASTE EVER

HYDROCLEANER
RECYCLING TECHNOLOGIES
TO CLEAN ANY TYPE OF
OF PLASTIC WASTE



PLASTIC RECYCLING

GOING DOWN NEW AVENUES

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.





CONTENTS

ABOUT US BRINGING ECOLOGY AND ECONOMY TOGETHER	4
OUR TECHNOLOGY, YOUR BENEFIT	5
HYDRO CLEANER THE CLEANEST WASTE EVER	6
HYDRO CLEANER APPLICATIONS	7
HYDRO CLEANER HOW IT WORKS	8
HYDRO CLEANER MANY TYPES OF DIRT, ONE CLEAN SOLUTION	10
HYDRO CLEANER THE CLEANEST OUTPUT ON THE MARKET	11
HYDRODYN SYSTEM UNITS	12
SYSTEM SOLUTIONS PLASTIC RECYCLING MADE EASY	13
CLEANING WASTE TO RAW MATERIALS - THE DIRTY PART OF RECYCLING HYDROCLEAN TWO SYSTEM SOLUTION FOR PCR FILM FROM CURBSIDE	14
PURIFYING RAW MATERIALS TO NEW POLYMERS - THE CLEAN PART OF RECYCLING HYDROPURE TWO SYSTEM SOLUTION FOR PCR RIGIDS FROM CURBSIDE	15

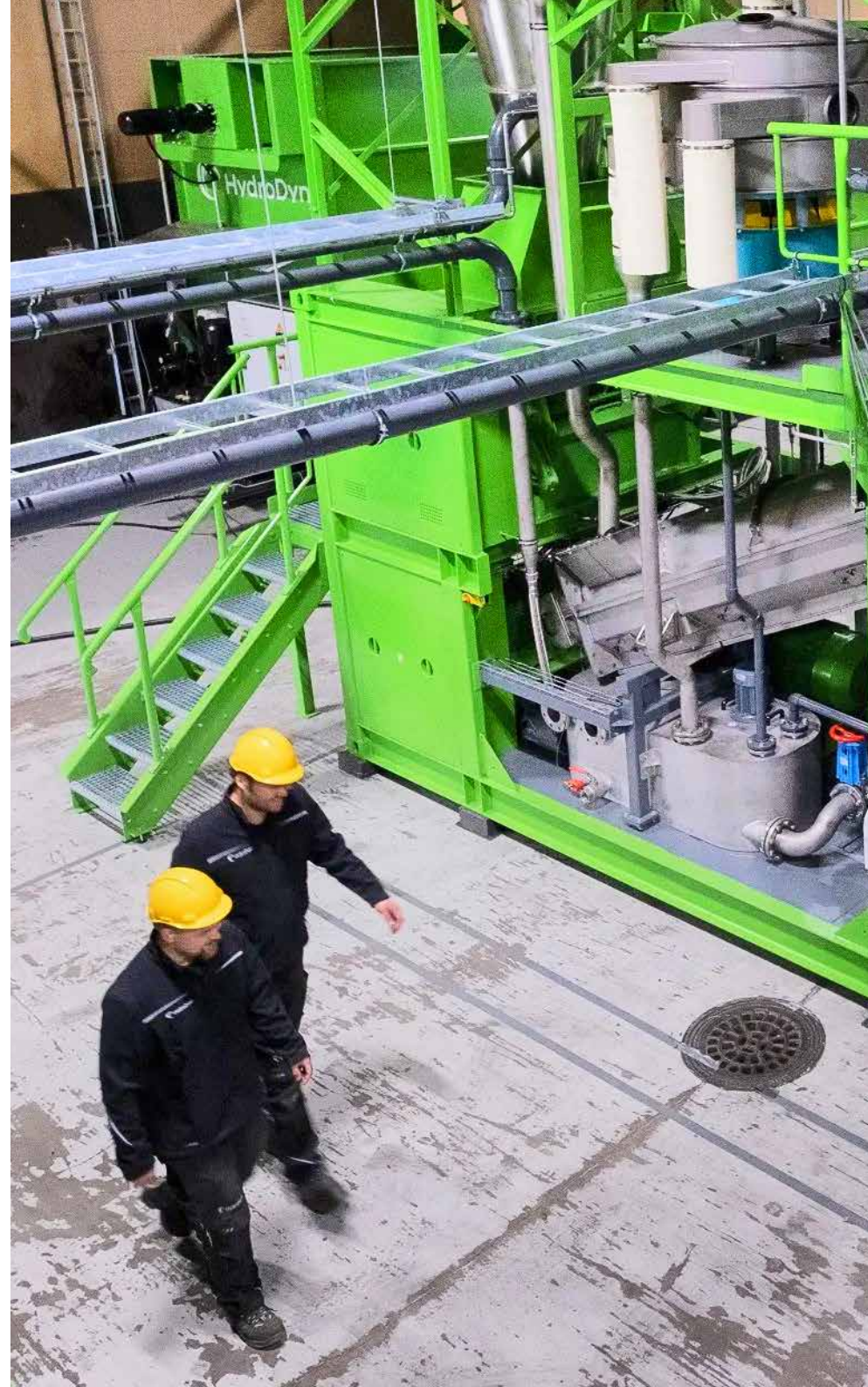
ABOUT US

BRINGING ECOLOGY AND ECONOMY TOGETHER

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



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

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

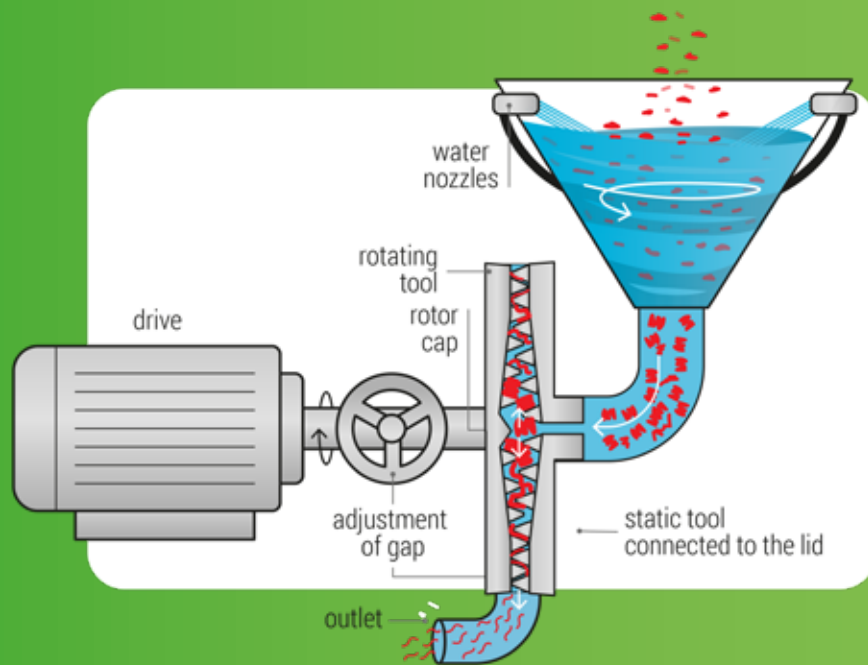
BRAND OWNERS

RETAILERS

HYDRO CLEANER

HOW IT WORKS

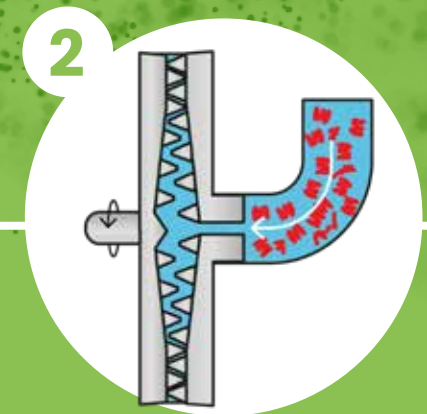
THE PATENTED HYDROCLEANER, WITH ITS FLEXIBLE TOOLS, CLEANS UP TO 200 M² PER SECOND IN ONLY ONE PROCESS STEP.



THE HYDRO CLEANER AT WORK

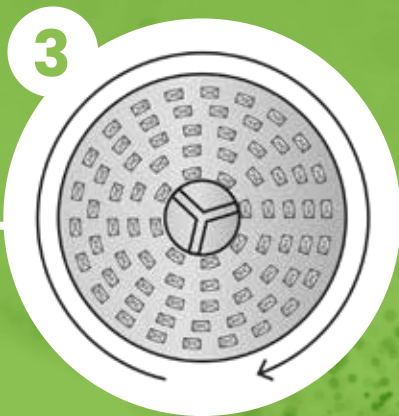


Water flows into the Hydro Flush Feeder. Flakes fall into the vortex and are rinsed downward.

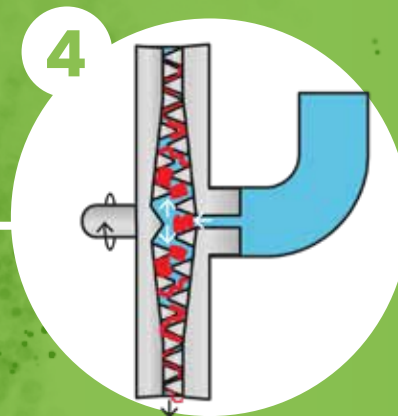


Flake water emulsion passes through an opening into the cleaning gap.

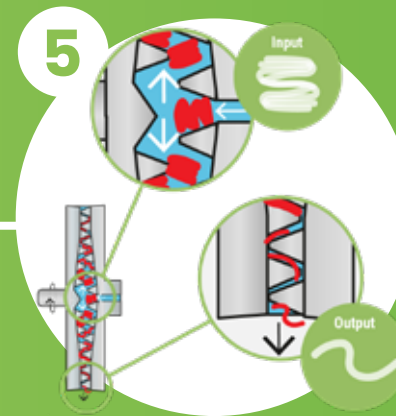
100% OF THE FLAKE SURFACE IS
TOUCHED BY FRICTION.



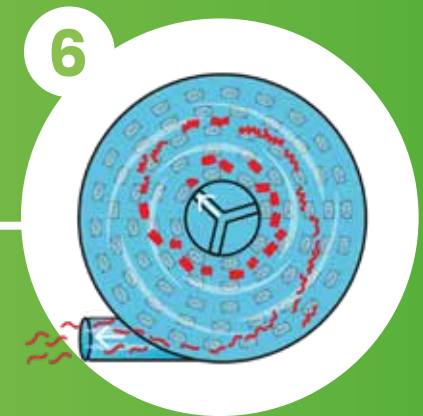
Emulsion hits the rotor cap of the rotating tool and is evenly distributed.



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



HYDRO CLEANER

THE CLEANEST OUTPUT ON THE MARKET

SPECS

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



GELS

Reduce the visual quality of the application.



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

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.

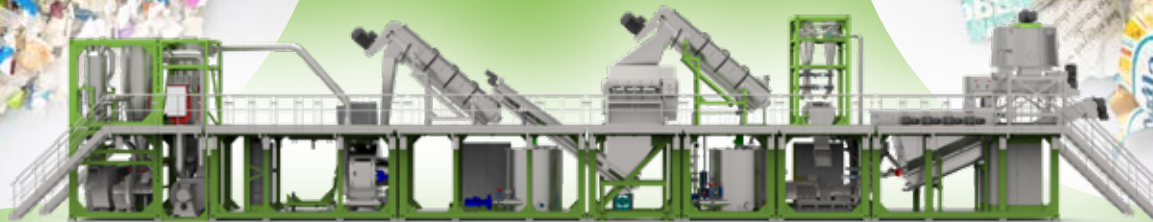


PURIFYING RAW MATERIALS TO NEW POLYMERS – THE CLEAN PART OF RECYCLING

HYDROPURE TWO SYSTEM SOLUTION FOR PCR RIGIDS FROM CURBSIDE

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

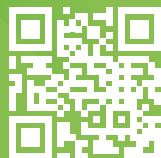
HydroPure brings the breakthrough in chemical Recycling. Optional UltraPure Technology enables In-Mold-Label Removal and Color Sorting for advanced mechanical Recycling.



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