



Advanced Compounding and Extrusion Systems

ONE CO-ROTATING HEART
IS BEATING IN OUR SYSTEMS



CO-ROTATING TWIN
SCREW EXTRUDERS

COMPOUNDING

ADVANCED
RECYCLING

NATURAL FIBERS

DIRECT EXTRUSION

LAB SYSTEM

ADVANCED
RECYCLING

COMPOUNDING
TECHNOLOGY
FOR RECYCLING
SYSTEMS



WE WORK FOR A SUSTAINABLE DEVELOPMENT

From
RE-CYCLING
To
UP-CYCLING

ADVANCED RECYCLING

LET US HELP YOU ACHIEVE SUCCESS IN THE "SPECIAL" WORLD OF RECYCLING.

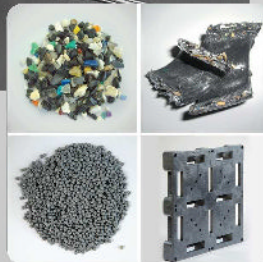
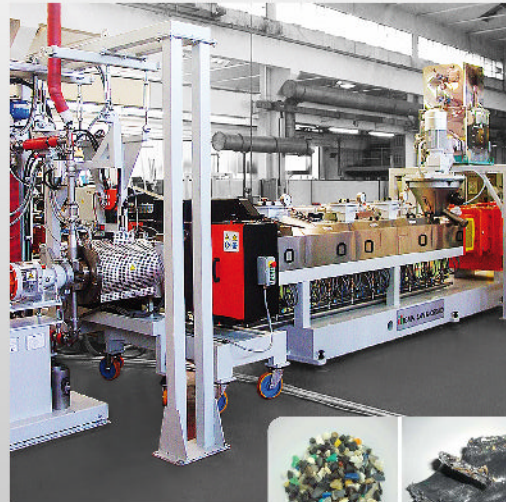
To turn the business from commodity to speciality and escape from this micro-business world, you need new ideas and world-class equipment:

- USE THE CHEAPEST POST-CONSUMER WASTE
- REDUCE ENERGY CONSUMPTION
- REDUCE MAINTENANCE COSTS
- UP-CYCLING THE RESINS WITH FILLING/ REINFORCING

4 POINTS TO CONSIDER FOR A SINGLE SOLUTION:



Compounding Technology for Recycling Systems



THE MOST REMARKABLE ADVANTAGES OF A SYSTEM EQUIPPED WITH AN ICMA TWIN-SCREW CO-ROTATING EXTRUDER, COMPARED TO A TRADITIONAL SYSTEM WITH SINGLE-SCREW EXTRUDER, ARE :

- **HIGHER ENERGY SAVING** due to reduced energy consumption (kWh/Kg)
- **BETTER** homogenisation when mixing materials with dissimilar densities/viscosities and/or compatibilities
- Extremely **QUICK** colour/material change
- **TIGHTER** melt temperature control thanks to the barrel high efficiency cooling system
- **HIGH-EFFICIENCY** degassing system minimizes volatiles
- **BETTER** self-cleaning characteristic of the extruder
- **EXCLUSIVE** filling or reinforcing of the recycled polymer can produce higher-value final products
- **REDUCED** maintenance costs thanks to the **modular** design of screws and barrel

RECYCLING/DIRECT EXTRUSION SYSTEM

- Direct extrusion/recycling system for converting unseparated waste into sheet, foil, pipe and profile shape
- Direct extrusion/recycling system for converting HDPE bottle/jug scrap into filled or reinforced sheet
- Direct extrusion/recycling system for the automotive industry to convert the Polyolefinic waste filled or reinforced into carpet/mats substrate
- Direct extrusion/recycling system for converting HDPE bottle/butt scrap into dimpled membrane

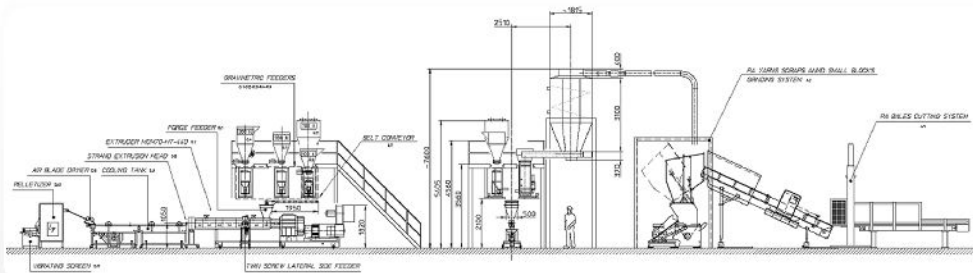


RECYCLING/COMPOUNDING SYSTEMS

one step process recycling, degassing, reinforcing or filling

- Recycling system of Polyolefin waste with a high water or pollution content.
- Recycling/compounding system of Polyolefin waste with a wide broad of viscosity/density, reinforced or filled
- Recycling/compounding system of plastic textile yarn waste reinforced or filled
- Recycling system of PET bottle flakes without pre-drying and crystallization





TURN-KEY SYSTEM

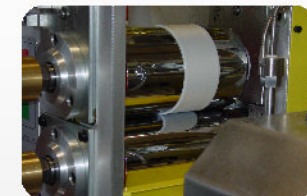
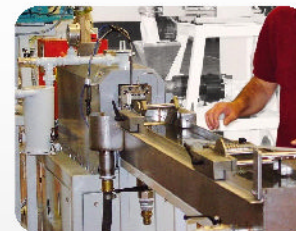
ICMA SUPPLIES THE SOLUTION SYSTEM FOR THE ADVANCED RECYCLING

ICMA long experience in this specific field assures the perfect knowledge for selecting the right solution partner at each stage of the process, starting from scrap handling, to the correct dosing solution.

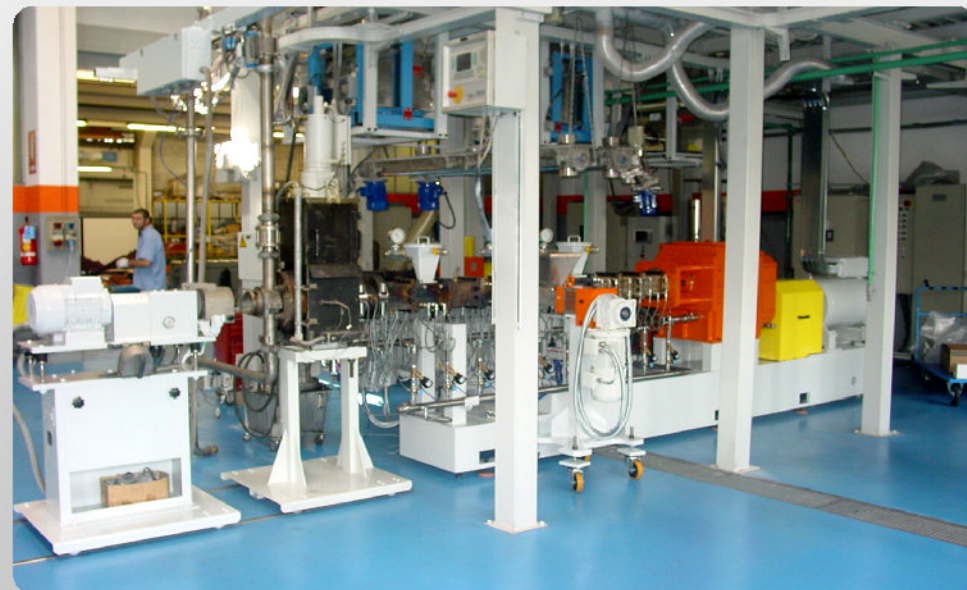
The selection of filtering system has become one of the key factor for any recycling project success. ICMA, in co-operation with European leading companies, could suggest the right choice for the best filtering solution.

Different solutions for cutting system are always selected for the best quality performances.

Handling, storage and packing solutions complete the system to the ultimate turn key project success.



LAB. SERVICE



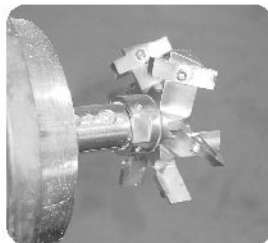
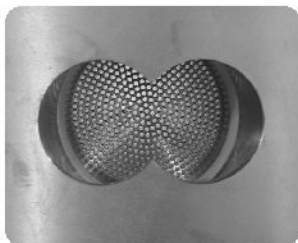
THE KEY FACTOR: CHECK THE POTENTIAL OF YOUR NEW PROJECT ON REAL PRODUCTION SCALE

ICMA lab facility is available for customers who want to be guaranteed the success in the market of a new recycled polymer.

Start up process could be carried out in two separate steps, with the first one using the pilot line with a lab size twin-screw co-rotating extruder (MCM/25HT) to run preliminary feasibility and processing tests on your own scraps.

Second step: check of the industrialization process and production testing lot. This step is performed on an industrial size extrusion line which includes a full-sized twin-screw co-rotating extruder (MCM/60HT) suitable for verification of specific production parameters. The line is complete with a gear pump and filtering system of last generation.

In the event of need to test the final product aspects and performances, a complete down-stream equipment for sheet, foil and profiles is also available.



POST-CONSUMER WASTE EXTRUSION/RECYCLING



LANDFILLING ?



NO THANKS, WE RECYCLE !

The perfect solution to recycle the unseparated, unwashed, heterogeneous post consumer plastic waste into valuable products.

Get for free the material nobody wants to use (or let public agencies pay you to get rid of it) and make products you can sell with profit.

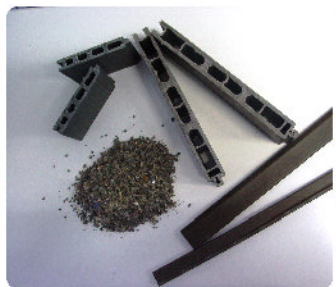
Thanks to the perfect mixing behaviour of the co-rotating twin-screw extruder, the remaining particles of metal, paper, fabric, wood, minerals are completely included/wrapped in the plastic matrix.

You can also compound the recycled material with mineral filler or you can reinforce it with glass fibres to enhance the performances of the final product.

The special tooling, properly designed for this specific application, allows you a consistent production of good quality profile with superior features.

Direct extrusion recycling of profile for applications like:

- Road kerbs, partitions
- Sleepers for train track
- Profiles for railing/fences
- Profiles for animal stables
- Profiles for street furniture/ playground
- Profile for cabin, pathway
- Decking for temporary house/office



ECO IMPATTO

new technology for plastic recycling

**MAKE IT GREEN
MAKE IT COOL !!!**

COMPOSITE PACKING WASTE EXTRUSION/RECYCLING

FOOD INDUSTRY demands more and more sophisticated packaging, nice, cool but absolutely enhanced shelf life.

PACKING INDUSTRY designs very complex composite film structure using heterogeneous materials.

Recycling of this **INDUSTRIAL WASTE** has become impossible : mix of resin like PET, PA, EVOH, PP, PE, Aluminium foil Paper or metallized film, plus many kinds of different functional elements like hot-melt, laquer.

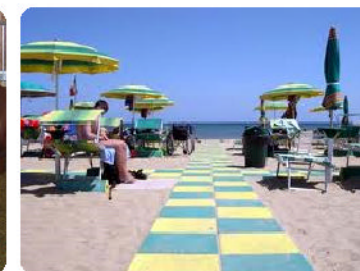
Moreover now new bio based polymers make this mix really unbelievable.

All production waste are unusable for the traditional recycling technology, the only chances is to burn it.



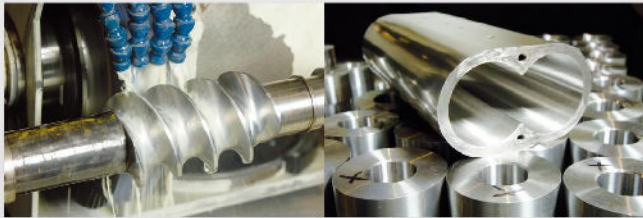
ICMA ULTIMATE SOLUTION: use it for the core of profiles, but make it cool with a decorative WPC skin layer.

Only **ICMA CO-ROTATING TWIN SCREW EXTRUDER** can process it in the proper way and obtain a real intimate mixing of the many different polymers and a perfect wrapping of the "non plastic" particles giving consistent mechanical behaviour to make the profile suitable for any standard traditional applications with a **REAL GREEN PROFILE**





CUSTOMER SUPPORT



HELP DESK

Our goal is to keep customers operating at peak efficiency. Our service team operates our HELP DESK 16 hours/day.

TRAINING SERVICE

Over our forty years experience in the compounding industry and a continuous R&D activity, we have developed a unique technical & process knowledge.

We condensed such knowledge in training seminars on co-rotating technology.

Our seminars extend beyond basic operations to processing knowledge that can make a difference in a competitive marketplace.



SPARE PARTS SERVICE

We offer a deep inventory of the most important extruder parts for rapid, "off the shelf" delivery.

We provide in-house support and manufacturing capability for screws elements, barrels sections and other important mechanical components to help guarantee quality control.



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