MAGUIRE®
Intelligent Simplicity

PETplanet

“Sustainability & Productivity Gains - Happen in a Vacuum”

ULTRA Low Energy Dryer

WELCOME

NPE2024 The Plastics Show | MADE FOR YOU

Produced by PLASTICS INDUSTRY ASSOCIATION

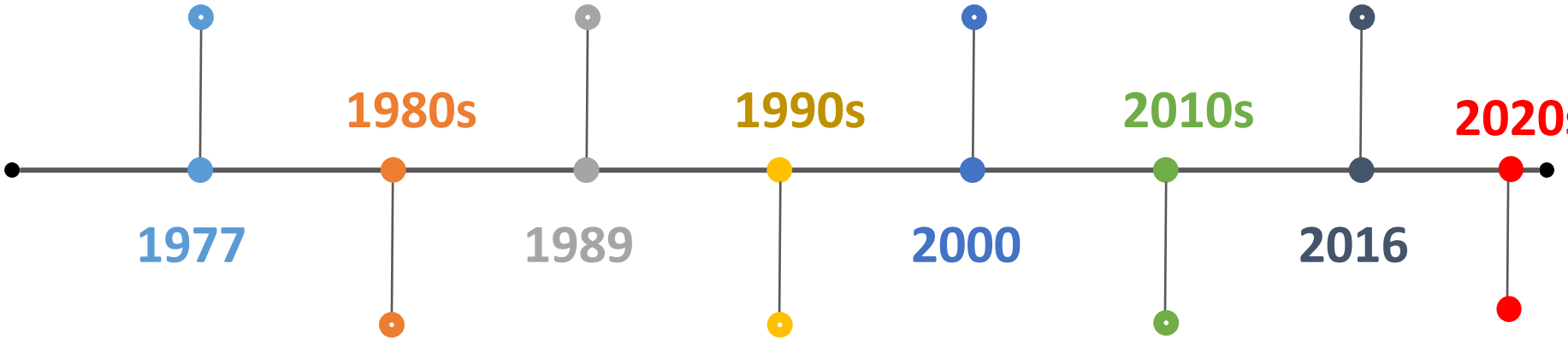
Maguire – company timeline

Maguire established
Focus on Liquid color, expanding to other volumetric dosing systems

WSB Gravimetric Blenders
Maguire launches gravimetric batch blenders
Fast ROI / Simple to use

Vacuum Drying
Maguire launches first vacuum dryers for plastics industry – speed / energy

ULTRA Dryer
3rd Generation Vacuum Technology
Significant savings and benefits with 1000s of applications



Volumetric Dosing
Maguire grows with broad range of volumetric dosing solutions

Conveying
Maguire adds conveying lines to support growth in blenders

Gravimetric Feeders
Maguire adds gravimetric technology to feeders

Next Generations

150 models of gravimetric blenders
Fusion line of blending & dosing
Growing range of ULTRAs plus functionality
50+ patents and growing
Global Sales

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? Why Dry by Vacuum?

7 The Magnificent Seven

1. 60% - 80% Average Energy Savings
2. 6 x Faster Drying Times
3. Fast Resin Changes – 15 minutes
4. Low Stress / Short Heat Residence Times
5. Small Footprint – 5 x Less Material in Process
6. Effective Removal of Volatiles [VOC]
7. Extremely Low Maintenance

ULTRA for PET – How does it work?

1

Phase 1: Heat
Residence Time: **40 – 60 minutes**
Resin Temp: 340°F / 170°C
Resin Humidity: 100 ppm

2

Phase 2: Vacuum / Dry
Residence Time: **15 – 20 minutes**
Vacuum Pressure: 3.15"/Hg / 80mm/Hg
Resin Humidity: >50 ppm

3

Phase 3: Convey
Load Cell Monitoring of Usage
Just in Time
Continuous Feed

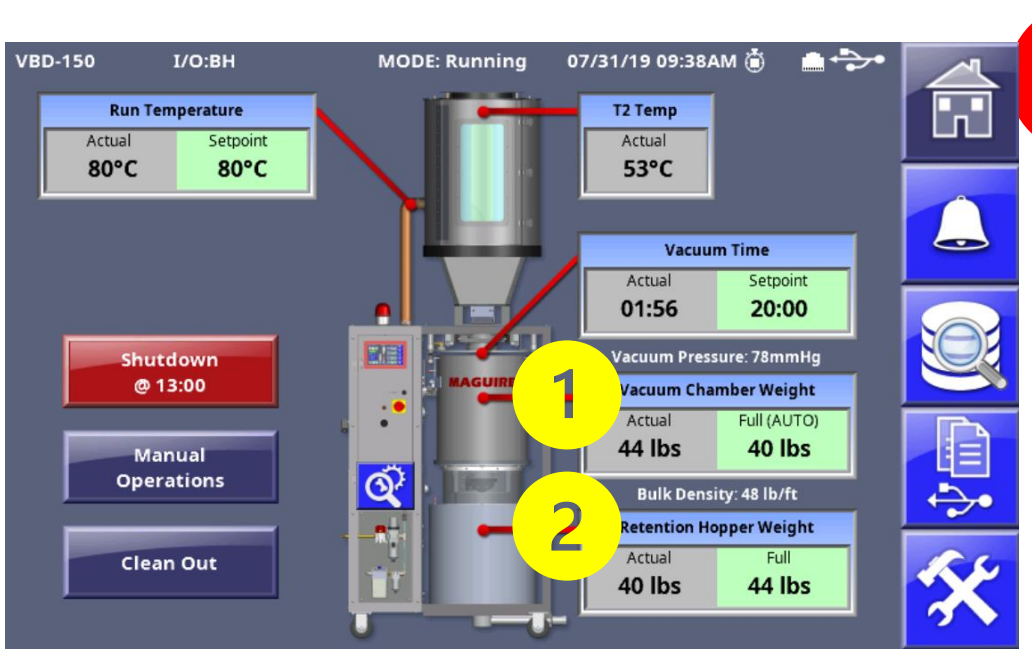
i

High Temperature material from Phase 1, then placed under **High Vacuum** in Phase 2, reduce the boiling point of any moisture present to 133°F / 56°C leading to moisture to rapidly leave material

Load Cells – Unique ULTRA Benefits

Load Cells: Vacuum Chamber

Load Cells: Retention Hopper



Intelligent next generation drying

Load cell data combined with the control of ULTRA allows ULTRA to control many other process parameters;

- VC Fill Weight
- RH Materials Usage
- Control w/lb/hr
- Demand Rate

Special Unique Controls;

- Auto Stop
- Dynamic Drying
- Pit Stop

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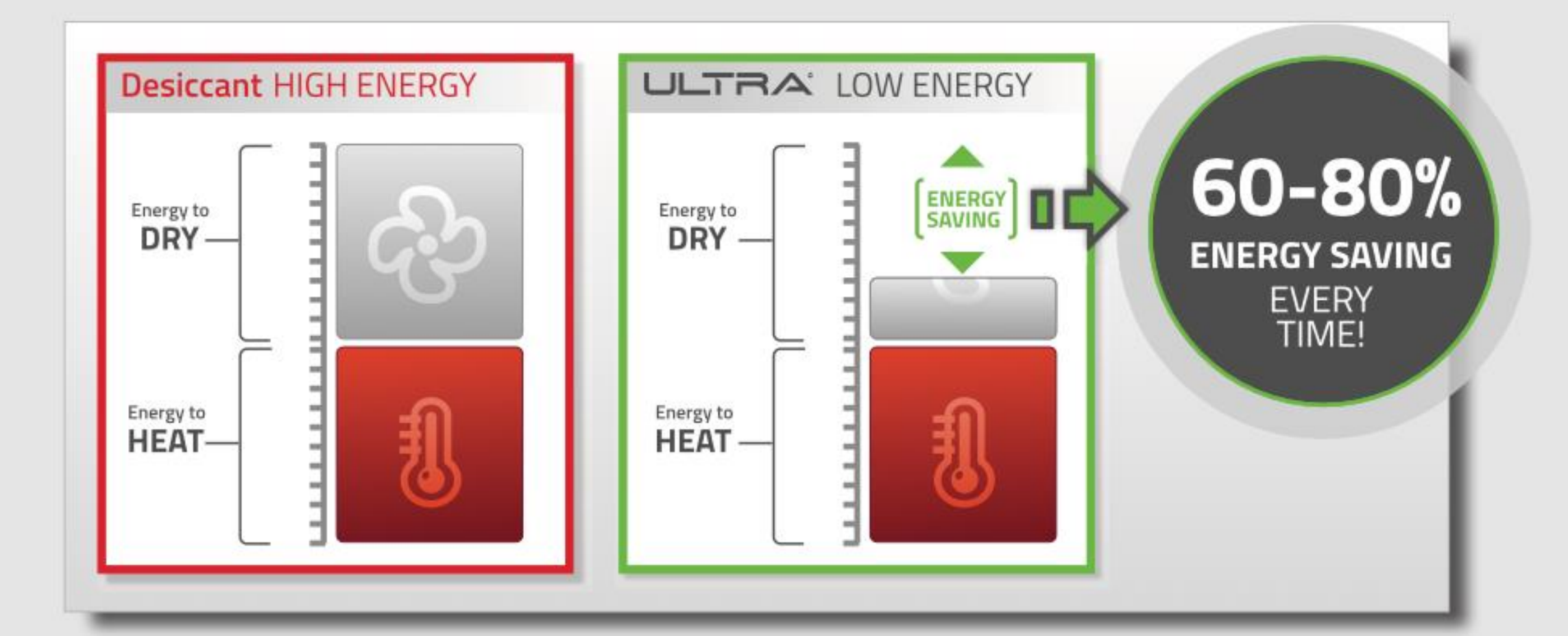
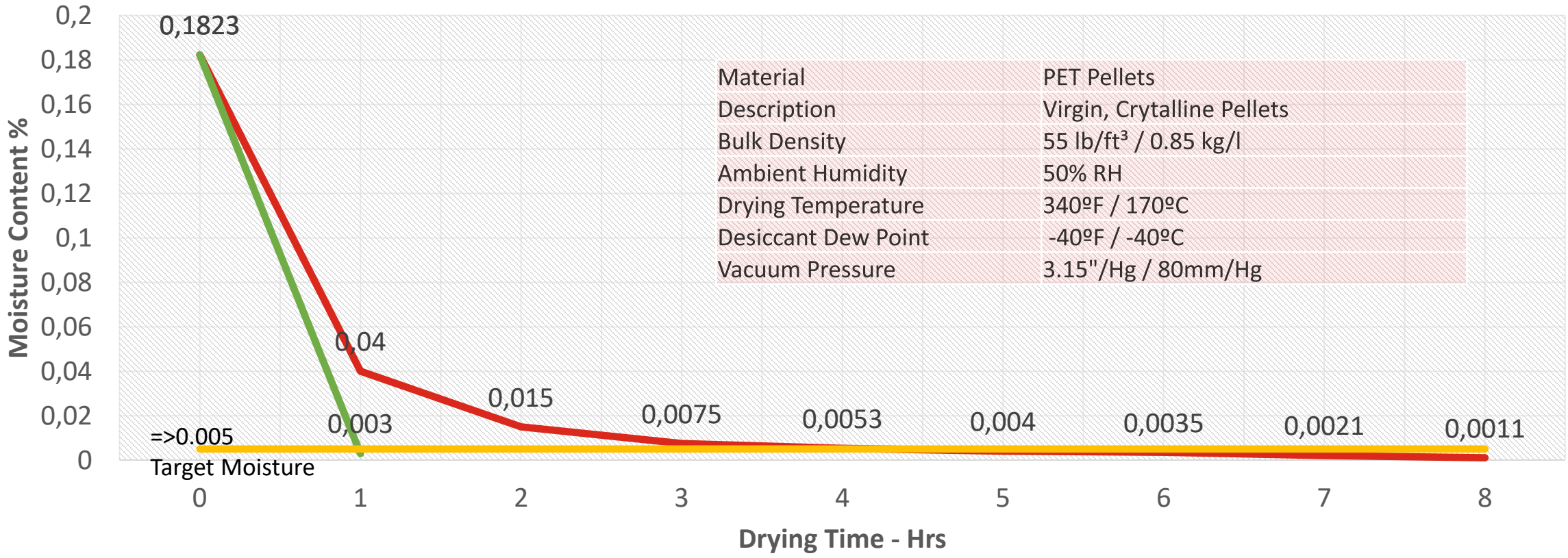
ULTRA - HOW MUCH ENERGY SAVING?



ULTRA - How Fast?



ULTRA - Fast Start Up & Resin Changes

- Continuous process
- Fast material changes
- Improved health and safety at work
- Avoids multiple dryers – buffer arrangements
- Eliminates material wastage / conveying / storage
- Aids planned material changes
- 60 – 80% energy savings
- 10-Yr Period - $172,800 Energy Saving

	Desiccant	ULTRA
Temperature	340°F / 170°C	340°F / 170°C
Energy to Dry	86 w/lb/h 190 w/kg/h	32 w/lb/h 70 w/kg/h
Heating / Drying Time	4 to 6 hours	40/20 minutes
Start-up Time	4 to 6 hours	1 hour
Energy Cost / Year	$27,360	$10,080
Material in Process	1500lbs / 860kg	350lbs / 160kg

Based on a 220lb/h / 100kg/h ISBM process

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Low Stress / Short Heat History

- Low stress / short heat history for multigenerational materials – RPET / PCR
- Growing demands for blends of rPET / PET
- ULTRA Heat hopper - open circuit design vaporizes VOC
- Improves bottle clarity
- No desiccant degradation, filter change, water connections
- No oil condenser

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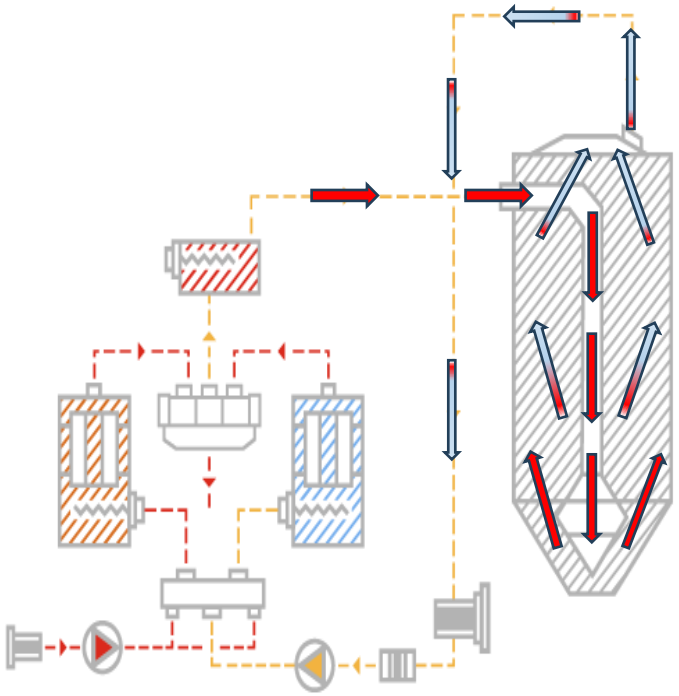
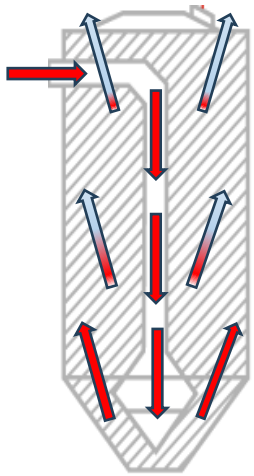
Space Saving

- Faster Drying means less material in process
- This means more compact drying equipment
- Example – 2 identical preform machines at up to 1,000lb/h
- Easier material changes – more responsive drying process

ULTRA – Unique Benefits - RPET / PCR Drying



Typical Desiccant Heat Closed Loop Airflow Circuit



ULTRA Heat Open Airflow Circuit

Benefits in reality - drying with ULTRA improvements are in:

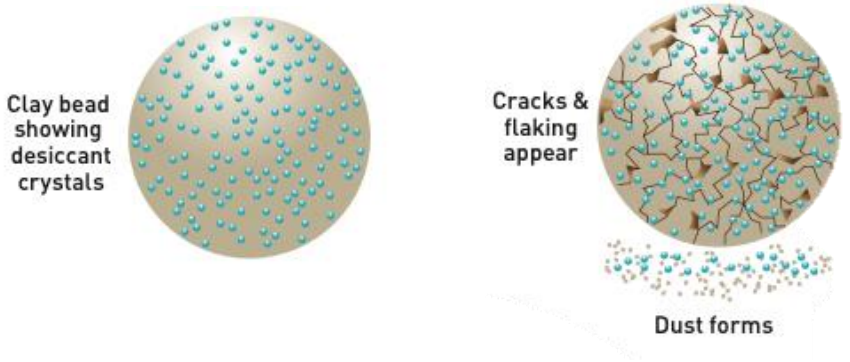
- Heat Exposure
- Material Properties
- Color
- Dust & Fines
- Degassing
- Deodorizing
- Clarity

ULTRA: Low Maintenance

- No desiccant to replace
- No process filters
- No water connection
- No oil condensors

New Desiccant Media

Desiccant Deterioration on 18 to 24 months



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Case Study - Berry Plastics

53 ISBM Machine
Principle materials – PET, RPET
400 material changes / month

Major concerns – energy cost and material change times exceeding 1 hour

ULTRA-150 at 42.74 kg/h / 94lb/h ran side by side with existing wheel dryer system over a 24-hour period

Wheel dryer consumed in 24hrs - 177.64 kW

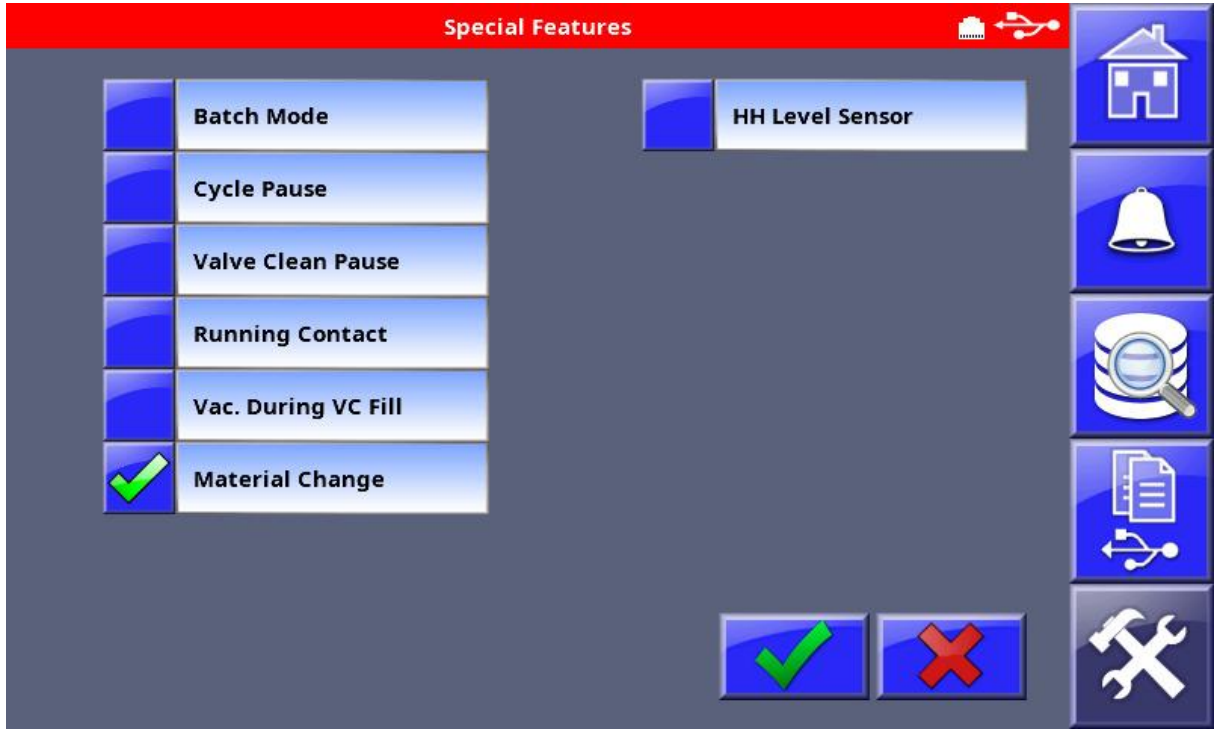
ULTRA consumed 24hrs - 70.12 kW

Total Energy saving of 60.5%

Berry Plastics – 15 MINUTE MATERIAL CHANGE

Material Change on the Fly or “Pit Stop”

Ultra uses load cells, which monitor material consumption and enable a special feature to deliver significant Productivity Gains.



Berry Plastics – 15 MINUTE MATERIAL CHANGE

Continuous process
Fast material changes
Improved health and safety at work

Avoids multiple dryers – buffer arrangements
Eliminates material wastage / conveying / storage
Aids planned material changes

Berry Plastics

– User experience

“ The feedback from our technicians is good which is always a welcome benchmark.

We can confirm that the 15min changeover “on the Fly” does seem to be consistent and we are very pleased with the gains in production this provides.”

John Fulcher

Manager - Injection Stretch Blow Mold Department, Berry Plastics

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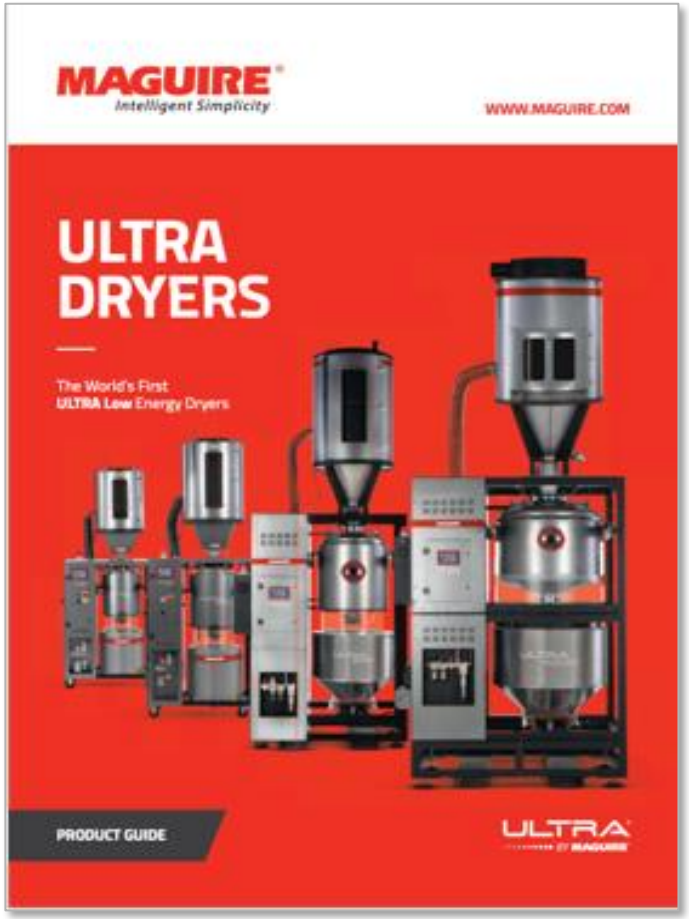
Ultra Low Energy Dryers



- Ultra Quick
- Ultra Smart
- Ultra Simple

- https://ultra.maguire.com/

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Contact Us

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