AMT
Advanced Microwave Technologies

Microwave technology for biomass treatment

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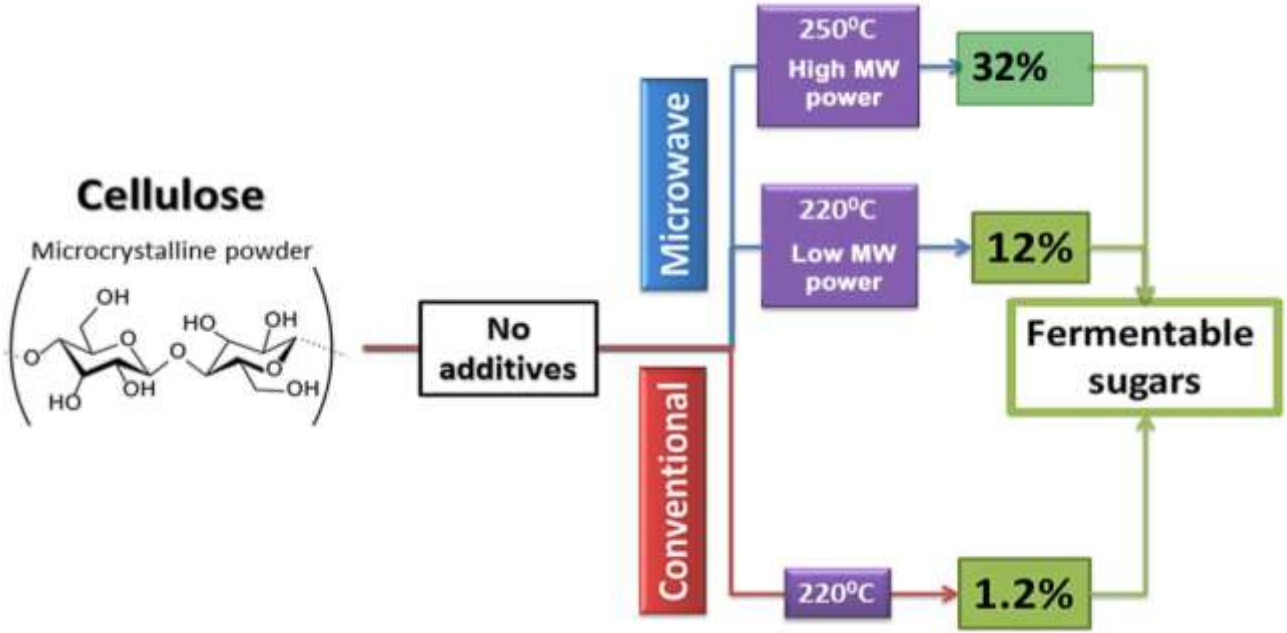
Overview of MW applications

Application	Application
Chemical extraction	Flavours and fragrances, pharmaceuticals and nutraceuticals
Pasteurisation	Food and drinks (Biggest market for us)
Sterilisation	Media preparation for pharmaceutical production
Feedstock pre-treatment	Bio-fuels and ethanol production
	Anaerobic digestion

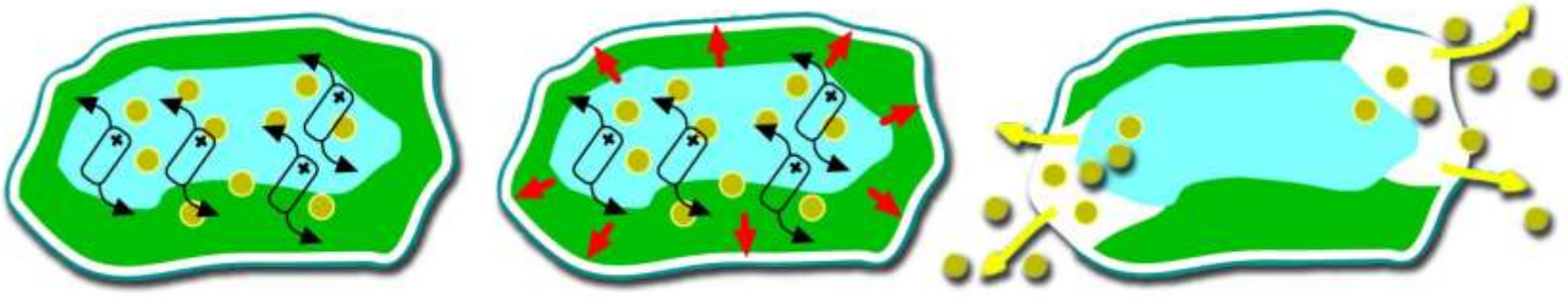
What can microwaves do?

- Solids – Breaking down cellulose/lignin



What can microwaves do?

- Liquids – Killing microbes at lower temperatures



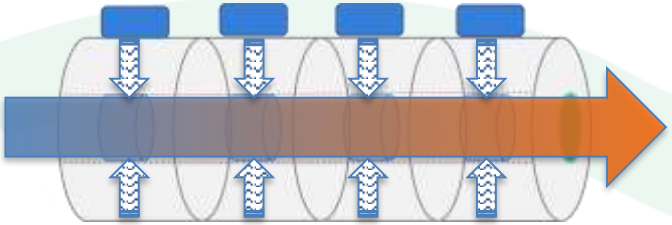
Microwaves rotate water molecules in cell

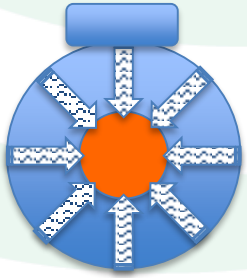
Rapid increase of temperature and pressure inside cell

Cell wall breaks down releasing contents

Technology

Microwave Volumetric Heating





Lab → **Pilot** → **Industrial**

Microwave Intensity

System		Magnetron power (kW)	Average MW intensity (W/cm^2)
AMT Advanced Microwave Technologies	Industrial	5.0	36.0
	Pilot	3.0	21.6
	Lab	1.0	7.2
Typical domestic		0.8	2.8

Huge potential for technology solutions

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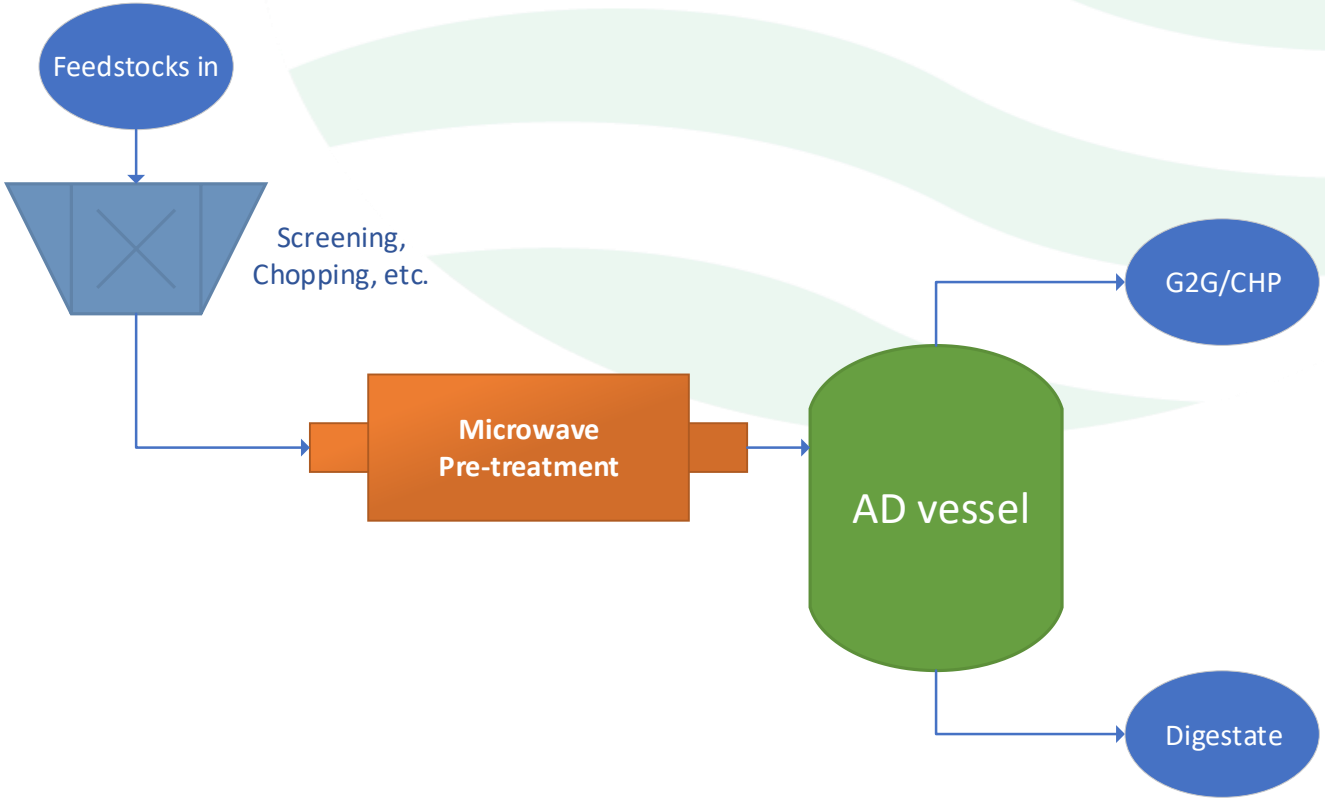
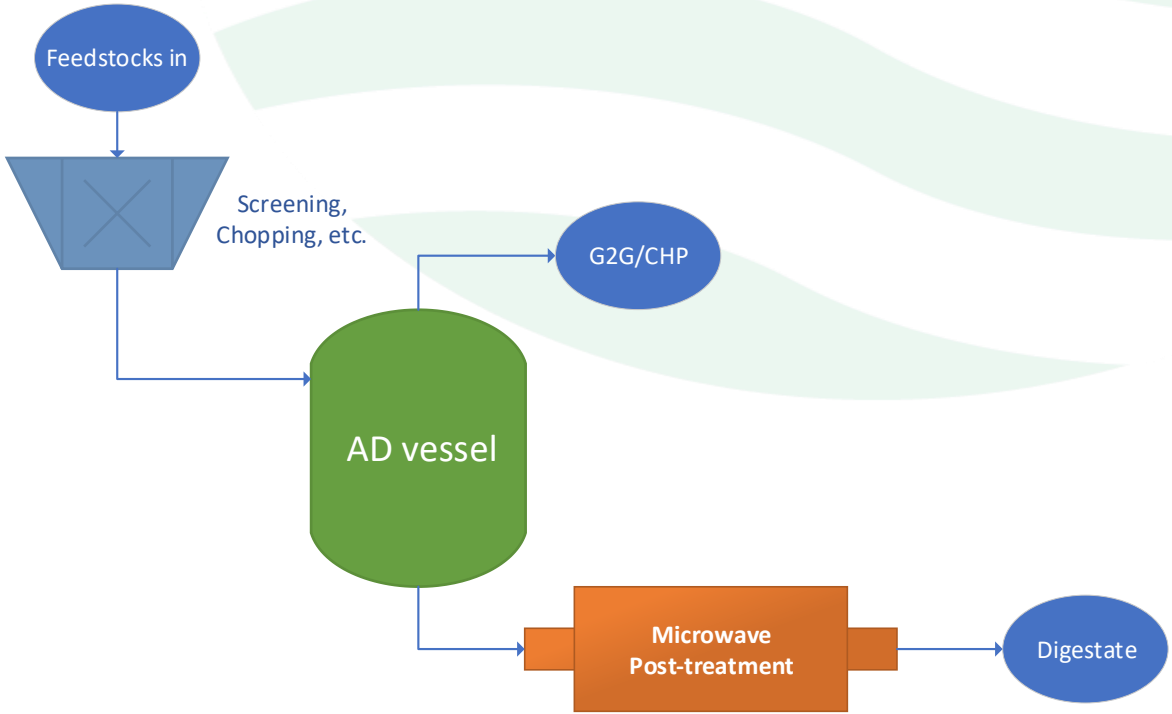
Generate more biogas, more quickly

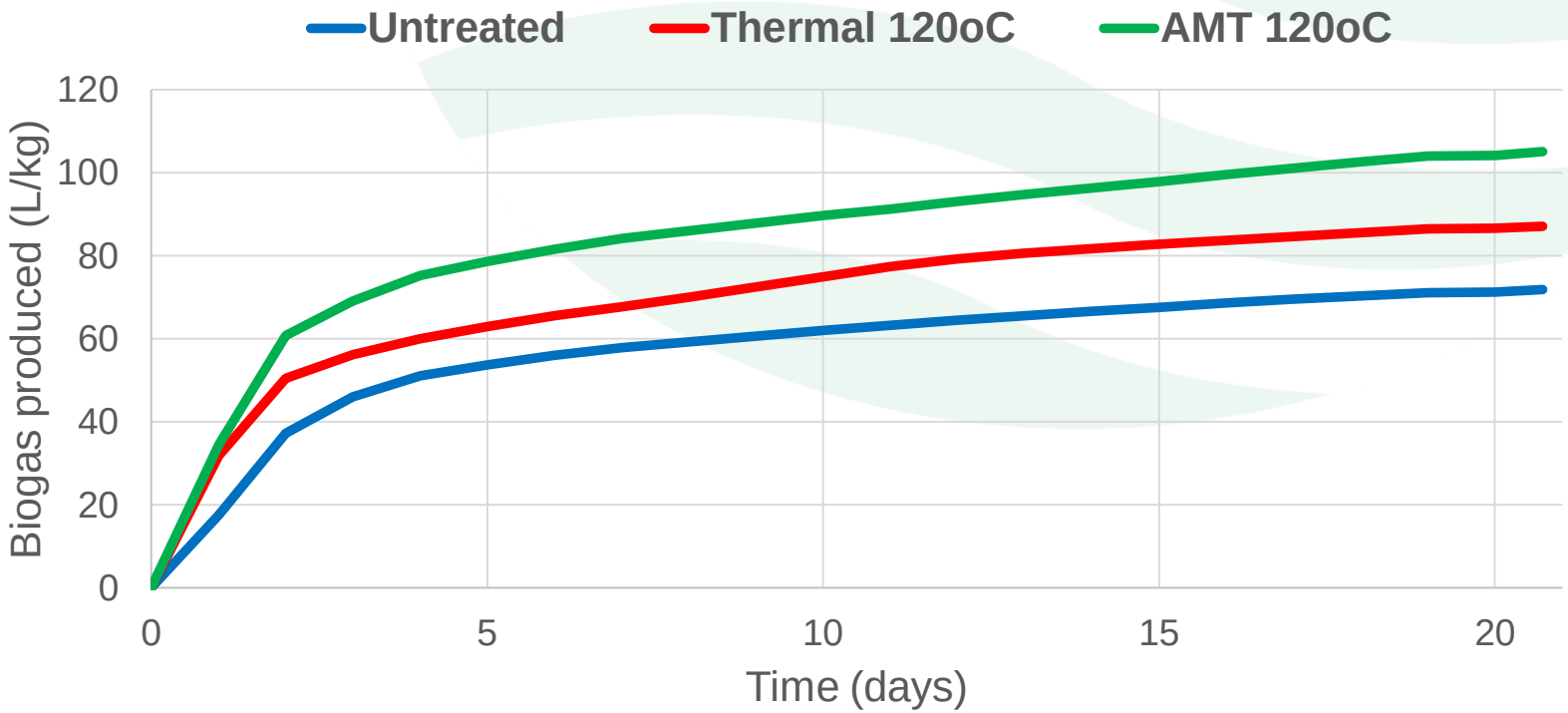
Where microwaves fit



Where microwaves fit

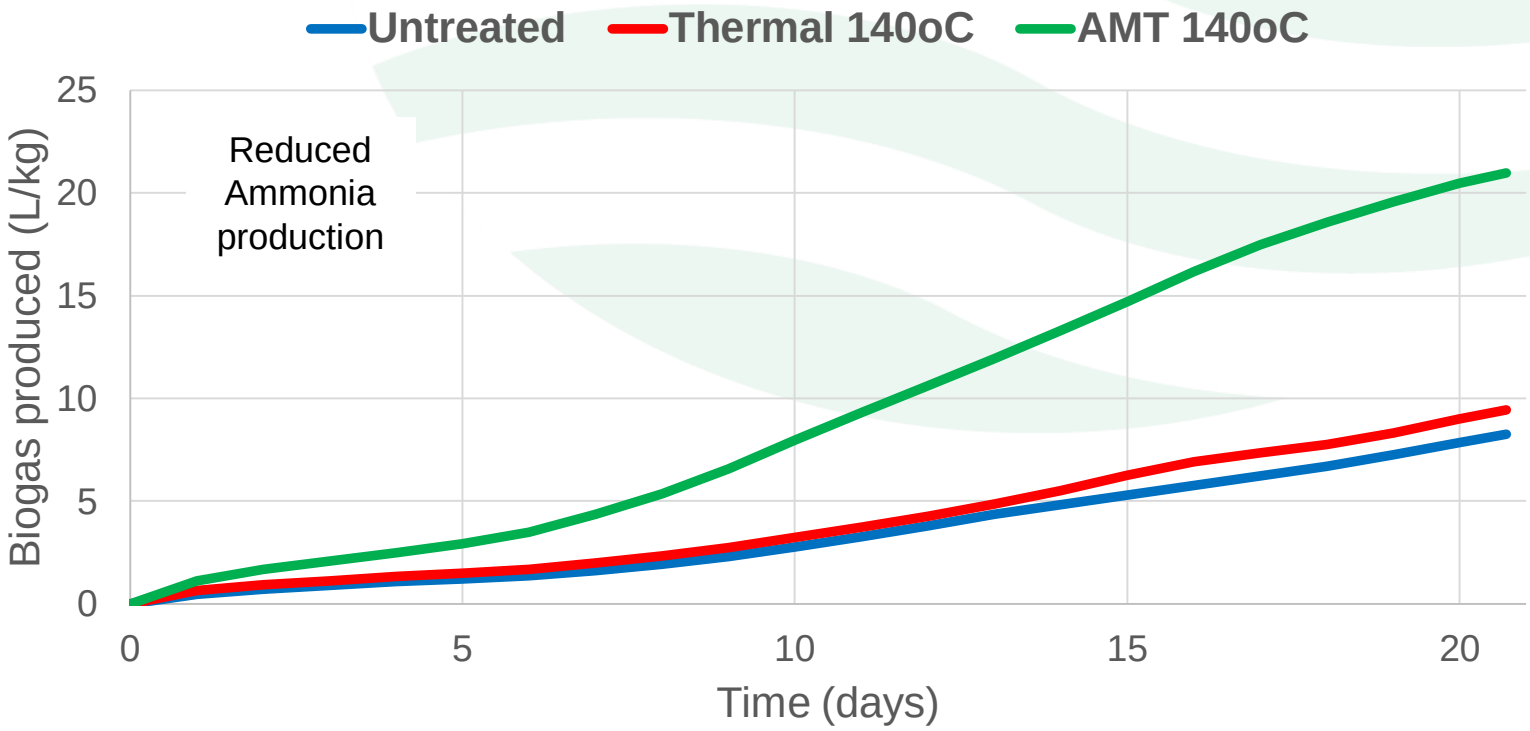


Sugar Beet – Reduced Hold Time



Independent BMP tests

Fat, Oil & Grease – Increasing Viability



Independent BMP tests

Feedstocks

Tested

- Brewers spent grains
- Sugar beat
- Maize silage
- Potato peelings
- Fat, Oil & Grease (FOG)

- We are keen to do more tests!

Planned

- Chicken waste
- Waste onions/leeks
- Whisky draff

AD business case

Much faster generation of biogas

Increased throughput

Enable use of lower quality feedstocks

Reduced size/CAPEX for new plants

Optimize ROI

Help under-performing G2G plants

Contact

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