

MAVITEC

Green Energy

Paddle Depacker: Organic Soup Labtest Booklet



The Paddle Depacker(s)

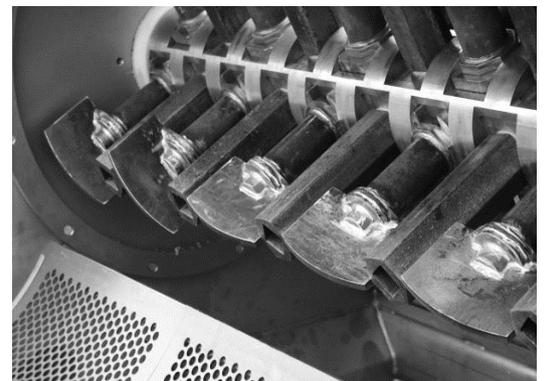
Function:

Producing a clean organic product suitable for biogas installations by separating the organic material from the packaging.



Features Paddle Depackers:

- Available in Carbon or Stainless Steel
- Heavy duty execution
- Simple and low maintenance design
- Compact size
- High capacity
- Variable screen sizes available
- > 99,5% clean organic material
- Quick (hydraulic) opening doors for easy cleaning
- Bolt free screen exchange
- Fixed shaft execution
- Stainless steel isolated splash shields for low noise operation



Paddle Depacker Model S:

up to 5m³ per hour *

Installed power:

11 kW / 18 kW **

Paddle Depacker:

up to 30m³ per hour *

Installed power:

45kW / 55KW **

* depends on material composition

**estimated consumed power 60 – 80%



Clean Soup Features

- Add liquid
 - Possible to add minimum liquid on different point
 - Change the amount of liquid you add
 - Change the type of liquid you add.
(hot water, liquid whey, old beer, digestate & many more)
- Adjust the angle of the paddles
 - Determine the retention time of the material inside the machine
- Change the screens
 - 4 screen sections which can be changed individually.
 - No bolt connection screens that can be changed in minutes.
 - Screens in different sizes (50mm-30mm-25mm-20mm-15mm-10mm-8mm)
- Change the rotation speed of the axle
- Change the distance from the paddle to the screen



Input & output Legislation

Input materials

The Paddle Depacker & Paddle Depacker Model S can process almost every type of packed or unpacked food waste and the contamination that comes with it. The Paddle depacker will be able to create a soup suitable for biodigesters complying with every legislation all over the world.

See below a list with example materials:

Kerbside waste, Hotel/Restaurant waste, Bread Products, Food production fails, Shop return waste, Canned Products, Drums, Various Containers, Baby foods, Deodorants, Powdered milk, Potato's, Nearly all Fruits, Vegetables, Pumpkin, Shop Returns, Manure/Straw, Carrots, Corn, Coleslaw, Unpacked food, Tetra Pak Containers, Soft Packaging, Sachets, Confectionery, Pet foods, Processed meats, Tea, Beans, Cereals, Pharmaceuticals, Cosmetics, Sachets, Ice cream, Water Ice, Beverages (bottle), Beverages (can), Cigarettes, Insecticides, Sauces, Yogurt, Biscuits, Coffee, Soups, Coleslaw, Detergents, Pasta, Sugar, Potato Gratin, Plastic Bottles, Sandwiches, mayonnaise buckets and many more.

Output Legislation

Biodigesting happens all over the world and many different countries have different legislation on the input quality of organic material, especially on foodwaste sources. Before foodwaste can enter the digester the organic fraction needs to be separated from the packaging fraction. Mavitec has already installed machines in countries with the most strict legislation. With the Mavitec Padddle Depacker you are guaranteed that the left over contamination in the organic fraction is within the legislation criteria of your country or the upcoming legislation changes.

On the following pages you will see some of our project cases with actual lab test results of separated the organic fraction. If you have any other questions or acquire more info about legislation in your country or full lab test documents of the projects cases please contact sales@mavitec.com



Project Case UK



Input material: Kerbside- & restaurant waste



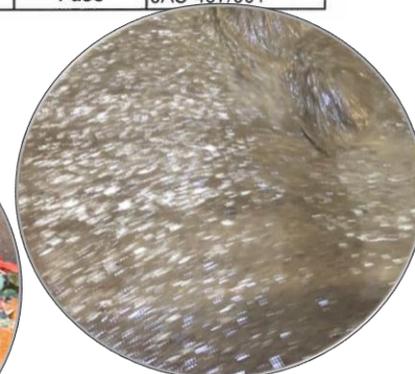
Laboratory



ALLIANCE TECHNICAL LABORATORIES
Analytical @ Consultant Chemists @ Microbiologists

Results of analysis:

Parameter	Result	Units	Field application rate to apply Total Nitrogen at 250 kg N/ha = 111.6 tonne/ha, and applies:	Pass or Fail	Method Reference
pH	7.5	pH units	-	N/A	BS EN 13037
Oven dry matter	2.29	%m/m	2,556 kg DM	N/A	BS EN 14346
Organic dry matter (Volatile solids, VS)	1.10	%m/m	1,228 kg ODM	N/A	BS EN 15169
Total nitrogen (N)	0.224	%m/m	250 kg N	N/A	BS EN 13654-2
Ammoniacal Nitrogen (NH ₄ -N)	1286	mg/kg	144 kg NH ₄ -N	N/A	SOP Z/004
Total Phosphorus (P)	865	mg/kg	221 kg P ₂ O ₅	N/A	BS EN 15587-1
Total Potassium (K)	1636	mg/kg	220 kg K ₂ O	N/A	BS EN 15587-1
Total Magnesium (Mg)	83	mg/kg	15 kg MgO	N/A	BS EN 15587-1
Total Sulphur (S)	87	mg/kg	24 kg SO ₃	N/A	BS EN 15587-1
Parameter	Result	Units	PAS 110 Limits	Pass or Fail	Method Reference
Cadmium (Cd)	<0.05	mg/kg	max limit 0.36	Pass	BS EN 15587-1
Chromium (Cr)	0.2	mg/kg	max limit 24	Pass	BS EN 15587-1
Copper (Cu)	15	mg/kg	max limit 48	Pass	BS EN 15587-1
Lead (Pb)	<0.05	mg/kg	max limit 48	Pass	BS EN 15587-1
Mercury (Hg)	<0.05	mg/kg	max limit 0.24	Pass	BS EN 15587-1
Nickel (Ni)	0.08	mg/kg	max limit 12	Pass	BS EN 15587-1
Zinc (Zn)	6.5	mg/kg	max limit 96	Pass	BS EN 15587-1
Volatile Fatty Acids	1.72	g COD/kg	-	N/A	Gas Chromatography
Volatile Fatty Acids	0.156	g COD/g VS	guideline max 0.774	N/A	Gas Chromatography
Physical contaminants (total) >2mm	<0.01	kg/t	max limit 0.11	Pass	JAS-497/001
Stones >5mm	0.00	kg/t	max limit 9.6	Pass	JAS-497/001



Project Case Denmark 1



Input material: Source segregated organic household waste (lot of paper bags)



Laboratory

 **eurofins**
ANALYSECERTIFIKAT

Test	Parameter	Resultat	Enhed	U(%)	Forv. værdi
# DR350	<i>Visuel</i>				
	Tørstof	15.1	%		
	Prøvemængde til sortering	487.5	g		
	Indhold af urenheder > 9,5 mm	0.043	% ts.		
	Indhold af urenheder 5 > x > 2 mm	0.006	% ts.		
	Indhold af urenheder 9,5 > x > 5	0.028	% ts.		
	Renhed i våd prøve	99.988	%		
	Renhed	99.922	% ts.		
	Total indhold af urenheder > 2 mm	0.078	% ts.		

<L.Q. / <LOQ : Under kvantifikationsgrænse
<L.D. / <LOD : Under detektionsgrænse

ND / N.D. : Ikke detekteret
x dupl. : x bestemmelse

< : Mindre end/under
> : Større end/over

Resultater fremhævet med rødt skyldes, at en/flere grænseværdier er overskredet



Project Case Denmark 2



Input material: Local source segregated organic household waste (KOD)



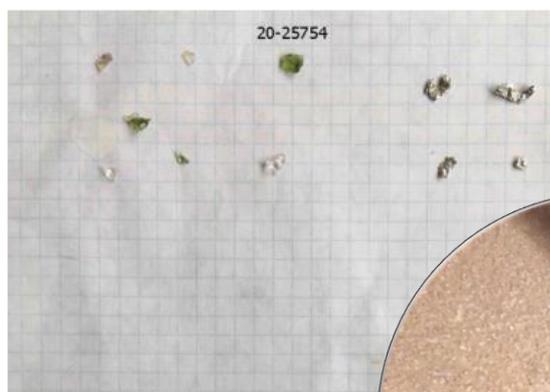
Laboratory



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LAB no: 20-25754, Sample No. 452192 Biopulp
Sample marking: Physical impurities in pre-treated biopulp (10 mm)

Analysis parameters	Result
Area	300 cm ²
Dry matter	21.2 %
Volume	1000 mL
Area covered by plastic Area	1.52 %
covered by plastic Plastic in dry	0.22 cm ² pr. % TS -
matter	0.0176 g
Plastic in dry matter	0.008 % in TS
Physical impurities in dry matter	0.1869 g
Physical impurities in dry matter	0.088% and TS



Dried organic in laboratory

Project Case Belgium



Input material Supermarket waste & Mixed Dairy waste (yogurt, milk, cookies etc)



Laboratory



Laboratorium Ecca nv

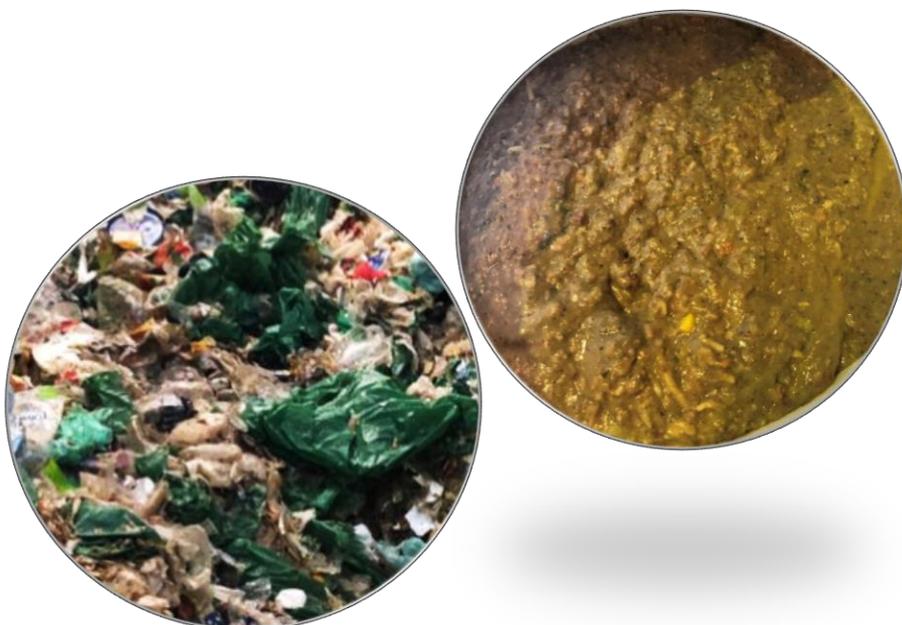
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E-20-041670	Energy mix	20 MM	20-20-15-15	15 MM	15-15-10-10	10 MM
State of the steel:		in accordance with CMA / 1 / B or WAC / 1 / A / 010				
Parameter	Result	Result	Result	Result	Result	
Dry matter	27.8 %	19.1 %	13.4 %	15.6 %	16.6 %	
Content of stones > 5 mm	<0.05 %	<0.05 %	<0.05 %	<0.05 %	<0.05 %	
Content of glass	0.00 %	0.00 %	0.00 %	0.00 %	0.00 %	
Content of impurities > 2mm	0.09 %	0.05 %	<0.05 %	<0.05 %	<0.05 %	
Content of impurities > 2mm (on DS)	0.32 %	0.26 %	<0.10 %	<0.10 %	<0.10 %	
Content of metal	0.00 %	0.00 %	0.00 %	0.00 %	0.00 %	
Content of other fraction	0.04 %	0.00 %	0.00 %	0.00 %	0.00 %	
Content of plastic	0.05 %	0.05 %	0.04 %	0.01 %	0.00 %	

SOP: LE_BIO_0190_stones and impurities (NG-E) - Standard: CMA / 2 / IV / 11 Method: Gravimetric

determination of the impurities present



Project Case Switzerland



Input material: factory waste, city waste & source segregated household organic waste



Laboratory



SUMMARY	
Sample	Description Incoming material
1	Organic waste from the vernier site with a finer screening than sample 2
2	Organic waste from the vernier site with a screening larger than sample 1
3	Waste transvoirie Migros test GE Waste
4	of nant de chatillon
5	Transvoirie waste from newrest
6	Transvoirie waste from newrest

Summary table and conclusion

Sample	Liquid (%)	Organic material (%)	Other materials (%)
Sample 1	83.99	15.78	0.23
Sample 2	84.45	15.50	<0.06
Sample 3	77.05	22.92	<0.03
Sample 4	92.12	7.83	0.05
Sample 5	90.24	9.70	0.06
Sample 6	99.59	0.38	0.03



Dried organic in laboratory

All samples contain less than 0.5% unwanted / strange debris (glass, plastic, metal).



Project Case Germany



Input material Supermarket waste & Mixed Dairy waste (yogurt, milk, cookies etc)



Laboratory

PLANCO-TEC



Probenart: **Bioabfall** Labornummer: **8-0000-074-2019**

Parameter		Prüfwert
Fremdstoffgehalt 1-2 mm	Glas	0,14 Gew. % TS
	Kunststoffe	0,01 Gew. % TS
	Folien	0,00 Gew. % TS
	Hartkunststoffe	0,01 Gew. % TS
	Metall	0,00 Gew. % TS
Flächensummenindex 1-2 mm		2 cm ²

Fremdstoffgehalt > 2 mm	Glas	0,11 Gew. % TS
	Kunststoffe	0,37 Gew. % TS
	Folien	0,02 Gew. % TS
	Hartkunststoffe	0,35 Gew. % TS
	Metall	0,08 Gew. % TS

Flächensummenindex > 2 mm 14 cm²

Trockensubstanz 12,4%

Die Untersuchungen wurden gemäß dem Methodenbuch der BGK e.V. durchgeführt.
INFU mbH - Geschäftsbereich PLANCO-TEC

Links: Glas und Metall

Rechts: Kunststoff

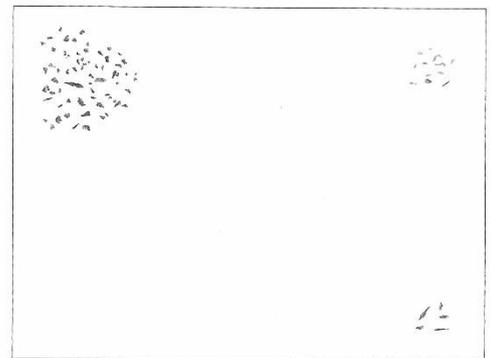


Abbildung: Visuelle Darstellung der Fremdstoffe in 1

Links: Glas und Metall

Rechts: Kunststoff

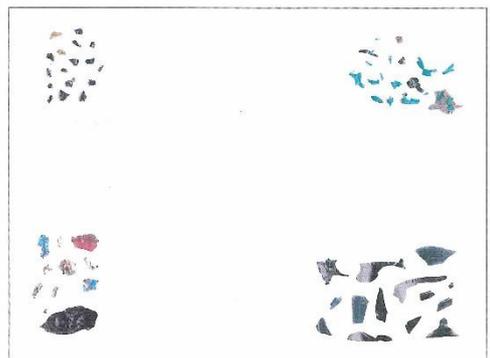


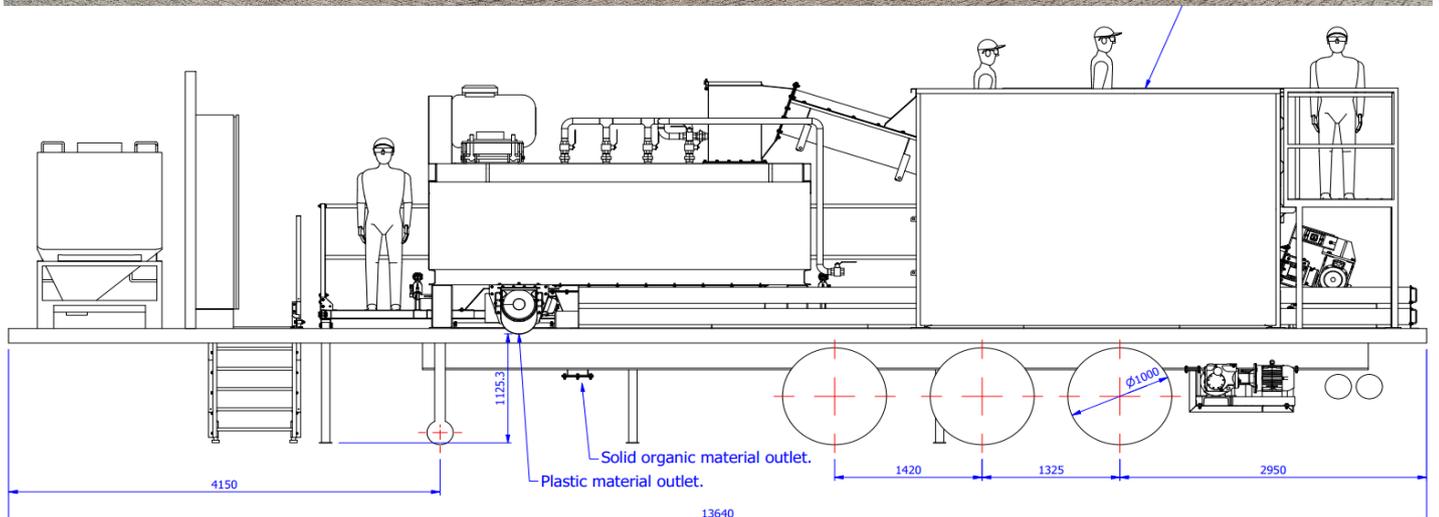
Abbildung: Visuelle Darstellung der Fremdstoffe in 1



Depackaging systems - test / rental units

Test your own material!

Want to try the Paddle Depacker at your own site? Our 30m³/hr machine is also available for rental, we want to offer you this unique opportunity to see the machine running and test your own material on your own site, to convince you your soup can also be clean! Within a few hours the test unit is up and running. More info send a mail to sales@mavite.com



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