SUMMARY of FOOD DE-PACKAGING TECHNOLOGIES

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November 2014

The Massachusetts commercial organics waste disposal ban, which applies to all businesses and institutions disposing of one ton or more of food waste per week, took effect on October 1, 2014. There are many cost effective ways facilities can comply with the new commercial food waste ban. Delivering food waste to an off-site composting or anaerobic digestion facility through a hauler is a common strategy, but other options include donating surplus food, reducing waste through purchasing controls and production modifications, and exploring technologies to manage and process food waste on site.

Packaged food is included within the definition of commercial organic material as defined under the new waste ban, and the packaging itself may also fall subject to an existing waste ban. More specifically, packaging types such as cardboard, paper, certain plastics, and metal are covered under existing waste bans in Massachusetts.

When managing packaged food waste, it is important to first assess available options for pre-processing and diverting packaged food from disposal. These options may include donating surplus packaged food to organizations in your community, sending the material to an off-site depackaging facility, and investing in on-site depackaging technology. On-site depackaging technologies may be used as a preliminary materials separation step prior to traditional on or off-site food waste and recyclable materials processing. The document is intended to provide additional information on available on-site depackaging technologies for packaged food waste management.

The data in this document is organized into an overview table followed by system-specific forms. In order to provide a concise summary of the technologies included, the overview table lists all submitted on-site systems with a subset of product information. Following the overview, the system-specific forms provide more in-depth information about each product and company contact information. These system-specific forms are presented in alphabetical order by company name and match the order in which they are listed on the overview table.

All company and product information provided in this document was obtained from manufacturers or distributors of the various technologies represented. No substantive edits have been made to this information beyond consolidating and editing it for formatting purposes. Listing in this document does not constitute endorsement by MassDEP or by RecyclingWorks in Massachusetts, and the information included has not been verified by MassDEP or RecyclingWorks in Massachusetts. Businesses and institutions interested in on-site depackaging systems are encouraged to use the contact information provided in this document and research the best system for their individual needs. RecyclingWorks in Massachusetts will update this document in the future as additional information becomes available.

For more information and resources on starting a food waste diversion program, visit the RecyclingWorks website at www.recyclingworksma.com. If you need help at any point, please call the hotline at (888) 254-5525 or email info@recyclingworksma.com to reach a recycling expert.

For more information on MassDEP waste ban regulations and assistance, view additional guidance on the MassDEP website here. For specific inquiries, please contact John Fischer at (617)292-5632 or john.fischer@state.ma.us.

If you are a manufacturer or vendor of on-site organic waste management technology and would like your information to be added to this document contact RecyclingWorks at (888) 254-5525 or info@recyclingworksma.com.

RECYCLINGWORKS MASSACHUSETTS

Overview of listed on-site food depackaging technologies

(Listed alphabetically by company name)

	Company Name	Model Name	Food Material Types	Packaging Types	Capacity	Separation Efficiency (%)	Price Range (USD)
1	**Brask Enterprises**	High Density Extruder	Wet food waste and liquids	Paper, plastic, aluminum, tin, steel, etc.	Varies	Liquid extraction rates up to 98% and volume & weight reductions up to 90%	Varies
2	**Brask Enterprises**	Xcycler	All	Varies	Varies	Varies	Varies
3	**Brask Enterprises**	Xtractor	Liquids	Plastic, tin & aluminum cans, and paper based containers	Up to 8 yd^3/hour (Over 12 yd^3/hour of aluminum cans)	Weight reduction up to 97% & volume reduction up to 95%	Varies
4	**Ecoverse (Doppstadt US)**	Tiger HS 640	Post consumer food waste, packaged foods, cafeteria waste, industrial food production rejects.	Cans, metal, plastic, paper, tetra pack, cardboard, plastic wrap, bags, etc.	9 tons/hour	98%	460,000
5	**JWCE**	ZWM (ZWM40xx/ ZWM30xx)	Liquids, dairy (i.e. milk, yogurt), canned foods, boxed foods	Cardboard, plastic bottles, metal cans	205 ft^3/hr (5.8 m^3/hr)	Varies	$100,000 – 125,000+
6	**Scott Equipment Company**	Turbo Separator	All	All	0 to 25 tons/hour	90% or greater	$125,000 - $245,000 (typical)
7	**Sebright Products, Inc.**	High Density Extruder	Wet food waste and liquids	All	Up to 28 yd^3/hour	See literature online	$70,000 - $500,000
8	**Sebright Products, Inc.**	X3Cycler	Liquid products	Aluminum cans and plastic bottles	Up to 30 yd^3/hour (Up to 1,200 lbs of PET per hour)	Volume reduction up to 95%	$70,000 - $500,000
9	**Sebright Products, Inc.**	Xtractor	Liquid products	Aluminum cans, plastic bottles and other liquid containers ranging from 0.5 to 4 liters	10 yd^3/hour (7.5 m^3/hour)	Weight reduction up to 93% & volume reduction up to 90%	$70,000 - $500,000

Company Information	
Company Name	**Brask Enterprises**
Address	PO Box 551 ATTLEBORO, MA 02703
Phone	800-848-8805
Website	www.brask.com
Contact Name	Tom Robinson / Keith Brask
Email	trobinson@brask.com
Technical Specifications	
Model Name and Number	High Density Extruder
Food Materials Accepted	Wet food waste and liquids
Packaging Materials Accepted	Paper, plastic, aluminum, tin, steel, etc.
Operation Method	Varies by machine.
Capacity (tph)	Varies by machine.
Separation Efficiency (% of food material separated)	Liquid extraction rates up to 98% and volume & weight reductions up to 90%
Power Requirements	Varies by machine.
Dimensions	Varies by machine.
Fabrication	Varies by machine.
Cost and Delivery	
Warrantee or Guarantee	
Equipment Price Range (USD)	Varies by machine.
Installation Cost (USD)	Varies by machine.
Required Service Interval	Varies by machine.
Estimated Maintenance Cost (USD)	Varies by machine.
Annual Operating Cost (USD)	Varies by machine.

Company Information	
Company Name	**Brask Enterprises**
Address	PO Box 551 ATTLEBORO, MA 02703
Phone	800-848-8805
Website	www.brask.com
Contact Name	Tom Robinson / Keith Brask
Email	trobinson@brask.com
Technical Specifications	
Model Name and Number	Xcycler
Food Materials Accepted	All
Packaging Materials Accepted	Varies by machine.
Operation Method	Varies by machine.
Capacity (tph)	Varies by machine.
Separation Efficiency (% of food material separated)	Varies by machine.
Power Requirements	Varies by machine.
Dimensions	Varies by machine.
Fabrication	Varies by machine.
Cost and Delivery	
Warrantee or Guarantee	
Equipment Price Range (USD)	Varies by machine.
Installation Cost (USD)	Varies by machine.
Required Service Interval	Varies by machine.
Estimated Maintenance Cost (USD)	Varies by machine.
Annual Operating Cost (USD)	Varies by machine.

Company Information	
Company Name	**Brask Enterprises**
Address	PO Box 551 ATTLEBORO, MA 02703
Phone	800-848-8805
Website	www.brask.com
Contact Name	Tom Robinson / Keith Brask
Email	trobinson@brask.com
Technical Specifications	
Model Name and Number	Xtractor
Food Materials Accepted	Liquids
Packaging Materials Accepted	Plastic, tin & aluminum cans, and paper based containers
Operation Method	Varies by machine.
Capacity (tph)	Up to 8 cubic yards per hour (Over 12 cubic yards of aluminum cans per hour)
Separation Efficiency (% of food material separated)	Waste weight reduction of up to 97% and waste volume reduction of up to 95%
Power Requirements	Varies by machine.
Dimensions	Varies by machine.
Fabrication	Varies by machine.
Cost and Delivery	
Warrantee or Guarantee	
Equipment Price Range (USD)	Varies by machine.
Installation Cost (USD)	Varies by machine.
Required Service Interval	Varies by machine.
Estimated Maintenance Cost (USD)	Varies by machine.
Annual Operating Cost (USD)	Varies by machine.

Company Information	
Company Name	**Ecoverse (Doppstadt US)**
Address	1265 Lear industrial Pkwy
Phone	440.937.3225
Website	http://ecoverseindustries.com/
Contact Name	Darren Finlay
Email	darren@doppstadtus.com
Technical Specifications	
Model Name and Number	**Tiger HS 640**
Food Materials Accepted	Post consumer food waste, Packaged Foods, Cafeteria Waste, Industrial Food Production rejects. Cans & Tin, Plastic, Paper, Tetra Pack (milk cartons), Shopping bags, Garbage bags.
Packaging Materials Accepted	cardboard, plastic wrap, plastic bottles, metal cans, etc.
Operation Method	The Tiger draws material into a vertical shaft mill through twin aughers. The material is shredded washed and sized through screens. Capturing 98% of organic material. The tiger can operate as a wet or dry unit.
Capacity (TPH)	9 tons per hour
Separation Efficiency (% of food material separated)	98%
Power Requirements	74.7 kw by 380 or 400 volt
Dimensions	7410 mm x 2500 mm x 4120
Fabrication	
Cost and Delivery	
Warrantee or Guarantee	1 year
Equipment Price Range (USD)	$460,000
Installation Cost (USD)	
Required Service Interval	
Estimated Maintenance Cost (USD)	
Annual Operating Cost (USD)	

Company Information	
Company Name	**JWCE**
Address	290 Paularino Ave, Costa Mesa, CA 92626
Phone	800-331-2277
Website	www.jwce.com
Contact Name	Aqua Solutions Inc Warren Brown - 508 317 2461
Email	wbrown@aquasolutionsinc.net
Technical Specifications	
Model Name and Number	**ZWM (ZWM40xx / ZWM30xx)**
Food Materials Accepted	Liquids, dairy (i.e. milk, yogurt), canned foods, boxed foods
Packaging Materials Accepted	Cardboard, plastic bottles, metal cans
Operation Method	Burst package open and spray wash with screen; separate liquids from solids
Capacity (tph)	205 ft^3/hr (5.8 m^3/hr)
Separation Efficiency (% of food material separated)	Varies - depending on material
Power Requirements	230v/460v/3ph/60Hz
Dimensions	
Fabrication	304ss material; installation by local distributor (factory trained)
Cost and Delivery	
Warrantee or Guarantee	1 year limited warranty
Equipment Price Range (USD)	$100,000 – 125,000+
Installation Cost (USD)	$3500 per day/1500 additional day
Required Service Interval	Grinder (3 -5 yrs); brush - 18 months
Estimated Maintenance Cost (USD)	Up to 10% of purchase price
Annual Operating Cost (USD)	n/a

Company Information	
Company Name	**Scott Equipment Company**
Address	605 4th Avenue NW, New Prague MN 56071
Phone	(413) 349-9491 - Corey Plucker @ EV New England (800) 264-9519 - Scott Equipment, Minnesota
Website	www.scottequipment.com
Contact Name	Corey Plucker - MA Local Representative with EV New England
Email	corey.evne@gmail.com pete.calderon@scottequipment.com
Technical Specifications	
Model Name and Number	**Turbo Separator**
Food Materials Accepted	All organic waste - mixed waste, single-type, packaged organic waste, organics contaminated with foreign material, industrial, commercial, residential, pre or post consumer, dry, liquid, slurry
Packaging Materials Accepted	All packaging types
Operation Method	The Scott Turbo Separator processes one incoming waste stream into two components - an organics stream for reuse (digestion, composting, etc.) - and a "contaminants" or packaging stream for further recycling, sorting, or disposal.
Capacity (tph)	0 to 25 tons per hour of infeed material
Separation Efficiency (% of food material separated)	90% or greater, variable based on the needs of each individual application
Power Requirements	Variable - 25 to 75 Horsepower
Dimensions	Variable 20" diam to 42" diam., 96" to 120" length Machine is custom designed for each application
Fabrication	Steel fabrication, indoor or outdoor installation Requires a suitable mounting surface
Cost and Delivery	
Warrantee or Guarantee	Typically 1 year
Equipment Price Range (USD)	Variable, depending on size, rate, system configuration and other options, typically ranging from $125,000 to $245,000 for equipment supply.
Installation Cost (USD)	Mechanical: Typically 25% of equipment cost Electrical: Typically 20% of equipment cost
Required Service Interval	Regular clean-out and preventative maintenance
Estimated Maintenance Cost (USD)	Varies based on material handled
Annual Operating Cost (USD)	Varies based on processing rate, HP and other system features.

Company Information	
Company Name	**Sebright Products, Inc.**
Address	127 N Water St, PO Box 296, Hopkins, MI 49328
Phone	319-389-5444 or 269-718-5732
Website	www.sebrightproducts.com
Contact Name	Gary Brinkmann
Email	Gary@sebrightproducts.com
Technical Specifications	
Model Name and Number	**High Density Extruder**
Food Materials Accepted	Wet food waste and liquids
Packaging Materials Accepted	All
Operation Method	Bales empty packaging while capturing remaining product for reuse or recycling
Capacity (tph)	Up to 28 cubic yards per hour
Separation Efficiency (% of food material separated)	See literature online
Power Requirements	See literature online
Dimensions	Length: 192 to 306" Width: 37 to 73" Height: 72 to 92"
Fabrication	See literature online
Cost and Delivery	
Warrantee or Guarantee	1 year parts and labor
Equipment Price Range (USD)	$70,000 - $500,000
Installation Cost (USD)	Application/facility specific
Required Service Interval	6 months - 1 year for base maintenance
Estimated Maintenance Cost (USD)	<10%
Annual Operating Cost (USD)	<10%

Company Information	
Company Name	**Sebright Products, Inc.**
Address	127 N Water St, PO Box 296, Hopkins, MI 49328
Phone	319-389-5444 or 269-718-5732
Website	www.sebrightproducts.com
Contact Name	Gary Brinkmann
Email	Gary@sebrightproducts.com
Technical Specifications	
Model Name and Number	**X3Cycler**
Food Materials Accepted	Liquid products
Packaging Materials Accepted	Aluminum cans and plastic bottles
Operation Method	Bales empty packaging while capturing remaining product for reuse or recycling
Capacity (tph)	Up to 30 cubic yards per hour (Up to 1,200 lbs of PET per hour)
Separation Efficiency (% of food material separated)	Container volume reductions of up to 95%
Power Requirements	30 Horsepower 230/460 V, 3 PH
Dimensions	Length: 222" Width: 85" Height: 155"
Fabrication	See literature online
Cost and Delivery	
Warrantee or Guarantee	1 year parts and labor
Equipment Price Range (USD)	$70,000 - $500,000
Installation Cost (USD)	Application/facility specific
Required Service Interval	6 months - 1 year for base maintenance
Estimated Maintenance Cost (USD)	<10%
Annual Operating Cost (USD)	<10%

Company Information	
Company Name	**Sebright Products, Inc.**
Address	127 N Water St, PO Box 296, Hopkins, MI 49328
Phone	319-389-5444 or 269-718-5732
Website	www.sebrightproducts.com
Contact Name	Gary Brinkmann
Email	Gary@sebrightproducts.com
Technical Specifications	
Model Name and Number	**Xtractor**
Food Materials Accepted	Liquid products
Packaging Materials Accepted	Aluminum cans, plastic bottles and other liquid containers ranging from 0.5 to 4 liters
Operation Method	Bales empty packaging while capturing remaining product for reuse or recycling
Capacity (tph)	10 cubic yards (7.5 M3) per hour
Separation Efficiency (% of food material separated)	Weight reduction of up to 93% and volume reduction of up to 90%
Power Requirements	7.5 kW (10 Horsepower) 460 V, 3 PH is recommended
Dimensions	Length: 157 9/16” Width: 48 1/2" Height: 78 5/8"
Fabrication	See literature online
Cost and Delivery	
Warrantee or Guarantee	1 year parts and labor
Equipment Price Range (USD)	$70,000 - $500,000
Installation Cost (USD)	Application/facility specific
Required Service Interval	6 months - 1 year for base maintenance
Estimated Maintenance Cost (USD)	<10%
Annual Operating Cost (USD)	<10%