

Electro Osmosis Dehydrator

ELoDe

The *Evolution* Has Begun



Brought to you by



**Charter Machine
Company**

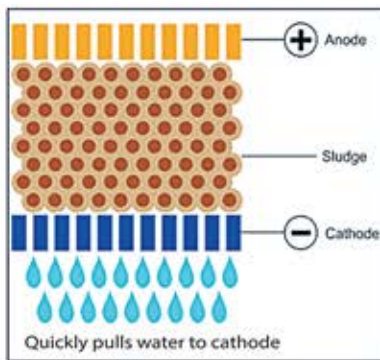
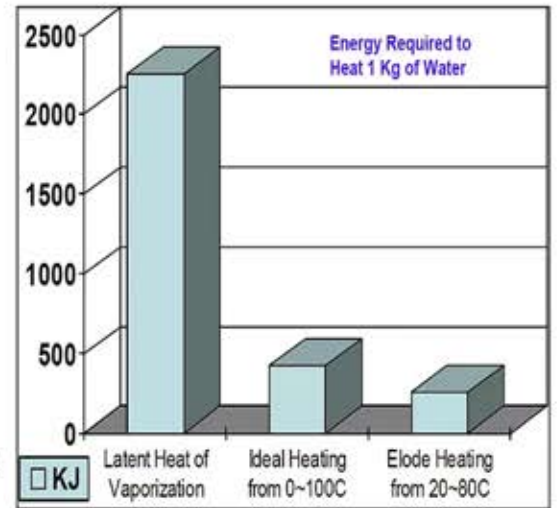
Advanced Dewatering Method Efficient & Super Quick

Drying by Boiling Water Away by Heat is Really Inefficient!

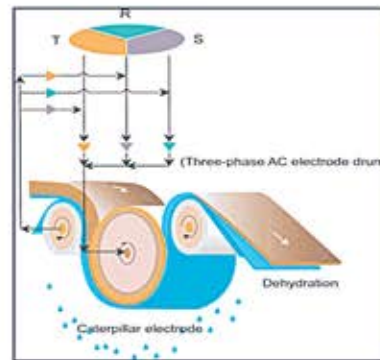
Did you know it takes almost 9x times more energy to boil away water than heating it from room temperature to boiling point? And with all the inefficiency of the mechanisms involved transferring heat to just sludge is next to impossible. Also your heating element must be much hotter than the sludge temperature to quickly transfer the heat. Therefore you must use multiple times the ideal heat energy needed to evaporate most of the water away.

What if you can Dehydrate without Boiling water?

ELODE does it well below boiling point of water. In fact it does not even use heat. It uses electric field to drive the water out of the sludge because sludge is highly polar. Our ELODE units does this everyday without heating, vacuum or adding chemical. It really is energy and cost efficient. See below graph of energy required to evaporate water in ideal condition. But you could be taking multiple times more energy to do it with conventional dryer.



The sludge cake is layered between anode drum and the cathode track

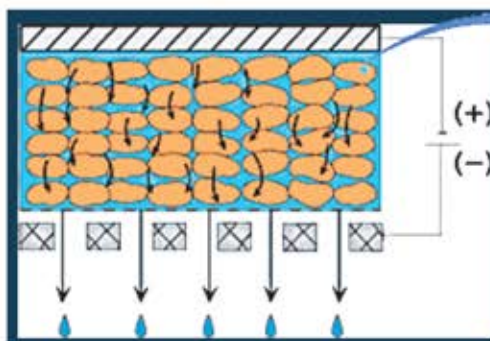
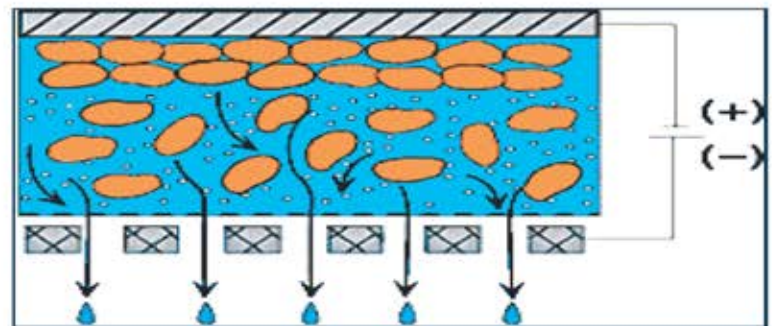


By applying our phased DC voltage between the electrode surfaces, the water molecule are pulled toward the cathode (-). All dewatering process is done in under a minute.

ELODE Electro-Osmosis Process

1. Instead of heating and evaporating the sludge we use a super efficient electric fields (electro-osmosis and electrophoresis) to pull water molecules.
2. Final electro-osmosis capillary effect forces the absorbed water to flow through porous solid to cathode (-).

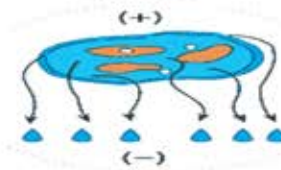
Highly Efficient & Super Fast!!!



Destruction of Cell Membrane

(From our electrical application)

* Causes the absorbed water from sludge to be released





Municipal Sludge 57% wt



Chemical Sludge 53%wt



Organic Mineral 55%wt



Industrial Oil Sludge 52%wt



Livestock Sludge 52%wt



Milk Sludge 58%wt



Soy Bean Sludge 53%wt



High Organic Dyeing 48%wt



Human Excreta 43%wt



Municipal+Excreta 51%wt



City Bio Sludge 55%wt



Pharmaceutical Sludge 48%wt

Model No.	EODS-500	EODS-1000	EODS-2000	EODS-3000
Sludge Input Width	450 mm	900 mm	1,800 mm	2,800 mm
Input Voltage	3 Phase, 220, 380, 480 VAC			
Output DC Voltage	30-90 VDC			
Power Consumption (typical)	40 KW	70 KW	120 KW	180 KW
Input Sludge Typical Weight	440-660 lb/hr	880-1,300 lb/hr	1,760-2,400 lb/hr	2,600-3,500 lb/hr
Input Sludge Thickness	6-10 mm			
Input Sludge Typical DS	10-35% from Mechanical Presses			
Output Cake Typical DS	40-50%, max 70%+ observed			
Typical Belt Speed	1.2 m/min			
Typical Washer Water Use	3 gal/min	5 gal/min	8 gal/min	11 gal/min
Compressed Air Use Max	1 gal/min			
Sludge Conductivity Range	2,000-10,000 uS/cm			
Base Unit Dimension LxWxH	3.2 x 1.9 x 2.5 m	3.2 x 2.5 x 2.5 m	3.2 x 3.5 x 2.5 m	3.2 x 4.5 x 2.5 m
Weight (kg)	3,000 kg	4,000 kg	5,500 kg	7,000 kg
Power Supply and Controller	1.0 x 1.0 x 1.8 m	1.2 x 1.2 x 1.9 m	1.3 x 2.0 x 1.9 m	1.3 x 2.8 x 1.9 m
Weight (kg)	1,200 kg	1,500 kg	2,000 kg	2,500 kg

Note: Specification are subject to change depending on many factors. There are thousands of types of sludge. We may modify the machine to be more suitable for custom application of our customers.

Evolution in Dewatering Technology



BENEFITS

Reduce All Costs in

- * Transporting
- * Disposal
- * Energy Use
- * Incinerating
- * Space Use

Reduce Sludge 50%+ in Under 10 Min!

Reliable and highly efficient electro-osmosis dewatering system can handle all types of organic sludge



(Moisture Content 70~80%)

From Standard Press (15~25% DS)



From ELODE (35~50% DS or better)

Over six decades of precision machine manufacturing.

