(주)화인 FINE Inc.

Electro-Osmotic Dehydrator ELODE®

Remarkable Dewatering system
50% Sludge Cake Cut-Down
Reborn to Renewable Energy

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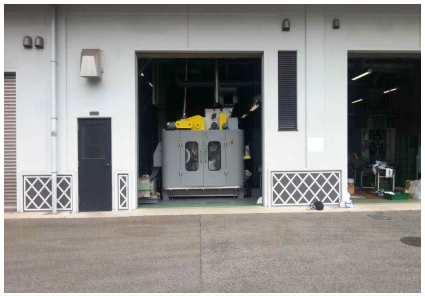
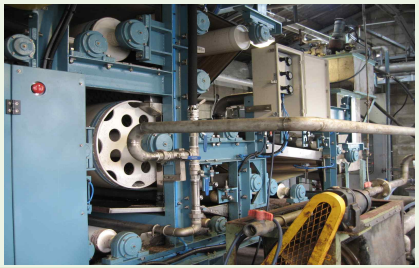
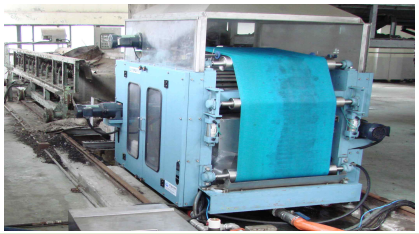
REFERENCES LIST of ELODE

Clients	Start Up	Model	Quantity	Sludge Characteristic & Before	After Result
WWA USA 	Jul/2018	EODS-500	1set	DEMO	DEMO

CITIC CHINA 	Aug/2018	EODS-500	2sets	DEMO	DEMO
LOTTE CHEMICAL PLANT 	Nov/2017	EODS-2000 + NVD-2000	1set	High Acid, High Conductivity Chemistry Sludge Characteristic. Yearly:35ton*300days=10,500ton	Beltpress 18%ds ▶ ELODE 40%ds ▶ NVD(Natural Ventilation Dryer) **60%ds** Cake Volume: 3,150ton(70% reduced) Cost saved :U$1.21mil
SINGAPORE SIEMENS PUB 	May/2008	EODS-1000	1set	DEMO	DEMO SIEMENS PUB R&D CENTER

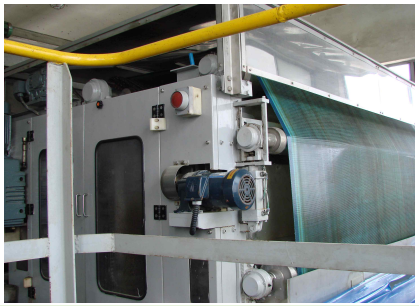
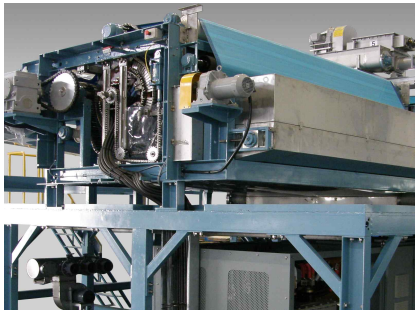
KOREA DUPONT PLANT 	Nov/2013	EODS-1500	1set	Please see attached for more detail report
NIGHT SOIL PLANT EXPORT TO JAPAN 	Mar/2014	EODS-500	1set	Please see attached for more detail report
SONGWON PLANT 	Dec/2013	EODS-3000	1set	Please see attached for more detail report

SAMSUNG ELECTRONIC PLANT 	Jan/2008	EODS-3000	3sets	LCD Inorganic+Organic Sludge Characteristic. Yearly: 3.6ton*20hr*300days=21,600ton Cost: 21,600ton*U$180/ton =$3,888,000	83%wt(17%ds):21,600ton. 48%wt(52%ds):7,060ton Yearly:14,500ton*$160 **=U$2,320,000 saved**
KOLON PLANT 	Sept/2007	EODB-2000	1set	Chemical & Bio-Chemistry Sludge Characteristic. Yearly:0.9ton*18hr*300days=4,860ton Cost:4,860ton*U$155/ton=$753,300	83%wt(17%ds):4,860ton. 55%wt(45%ds):1,836ton Yearly:3,024ton*$155 **=U$468,720 saved**
SIEMENS WATER TECH. USA 	May/2008	EODS-1000	1set	DEMO	DEMO

MOSCOW MBK PLANT. RUSSIA 	Jan/2009	EODS-1000	DEMO	DEMO	DEMO
NAMBU WWTP. KOREA 	Aug/2010	EODS-2000	1set	Municipal Organic Digested Sludge. Yearly:0.8ton*12hr*280days=2,688ton Cost:2,688ton*U$80/ton=$215,040	80%wt(20%ds):2,688ton. 58%wt(42%ds):1,280ton Yearly: 1,408ton*$80 **=U$112,640 saved**
POLAND 	June/2009	EODS-1000	1set	DEMO	DEMO

HUNGARY 	Mar/2008	EODS-500	1set	DEMO	DEMO
AUSTRIA 	May/2008	EODS-500	1set	DEMO	DEMO
AMORE PACIFIC 	Dec/2004	EODS-2000	1set	Cosmetic Biological Activated Sludge Yearly:0.75ton*24hr*320days=5,760ton Cost:5,760ton*U$120/ton=$691,200	88%wt(18%ds):5,760ton. 62%wt(38%ds):2,728ton Yearly: 3,032ton*$120 **=U$363,840 saved**

HYUNDAI MOTORS 	Jan/2005	EODB-1000	1set	Chemical Chemistry Sludge Characteristic. Yearly:0.5ton*8hr*280days=1,120ton Cost:1,120ton*U$140/ton=$156,800	82%wt(18%ds):1,120ton. 60%wt(40%ds):504ton Yearly: 616ton*$140 **=U$86,240 saved**
UNITED KINGDOM 	Nov/2007	EDOB-500	1set	DEMO	DEMO
SUWON WWTP 	Apr/2006	EODS-3000	4sets	Municipal Organic Activated Sludge. Yearly:4.8ton*16hr*300days=23,040ton Cost:23,040ton*U$80/ton=$1.84mil	80%wt(20%ds):23,040ton. 55%wt(45%ds):10,240ton Yearly: 12,800ton*$80 **=U$1.02 mil saved**

ARK PLANT. RUSSIA 	Mar/2004	EODS-3000	3sets	Paper Mill Activated Sludge. Yearly:4.2ton*24hr*320days=32,256ton Cost:32,256ton*U$??/ton=$??	75%wt(25%ds):32,256ton. 55%wt(45%ds):17,920ton Yearly: 14,336ton*$?? **=U$?? saved**
DANGHAE PULP PLANT 	Mar/2004	EODS-3000	2sets	Paper Mill Activated Sludge. Yearly:2.8ton*18hr*300days=15,120ton Cost:15,120ton*U$90/ton=$1.36mil	78%wt(22%ds):15,120ton. 58%wt(42%ds):7,920ton Yearly: 7,200ton*$90 **=U$648,000 saved**
LG CHEMICAL PLANT 	Jun/2003	EODS-2000	1set	Chemical Chemistry Sludge. Yearly:0.7ton*8hr*290days=1,624ton Cost:1,624ton*U$180/ton=$292,320	82%wt(18%ds):1,624ton. 55%wt(45%ds):650ton Yearly: 974ton*$180 **=U$175,320 saved**

TAEKWANG PETROCHEM 	Feb/2005	EODS-2500	2sets	Petro Chemical Chemistry Sludge. Yearly:1.6ton*24hr*320days=12,288ton Cost:12,288ton*U$190/ton=$2.34mil	88%wt(12%ds):12,288ton. 65%wt(35%ds):4,213ton Yearly: 8,075ton*$190 **=U$1.53mil saved**

Thanks and with regards,
Antonio KIM/Managing Director

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REPRESENTATIVE REFERENCES

The followings are New Up-Graded ELODE's detail reference and back data sheet

CLIENTS	DuPont Inc. Korea		Remark
Model	NEW ELODE-1500S, 1.5meter Belt Width		Main Process machine
Running Start	November, 2013		
Operating term	3.2 years		
Site Location	Ulsan. Korea		
Sort of Sludge	High Organic Chemical Sludge		
Sludge Characteristic	Very difficult high organic sludge		Impossible at existing ELODE
1st Machine & Input DS%	Beltpress 88%wt ±2%		
Daily Throughput	700kg x 5hours = 3.5ton		
Result of Before & After	Before (88%wt)	After (64%wt)	2.34tonx300days=702ton reduced. x$150 = **Yearly U$105,300 SAVED**
	3.5ton/day	1.16ton	
	Reduced 66.85%	Daily 2.34ton Reduced	
Refer-Photos			
Electric Consumption	Average : 120~140kWh		
Electric-Consumption vs Dehydrated	Dewatering discharged/hr : 468liter, Max 140kW **= 0.299kWh**		**Old ELODE was 0.65kW/liter**
Others Feature	NEW UP-GRADED ELODE Guaranteed: +50% Electric consumption saved, Main drum 3 years guarantee, Belt 1year guarantee, High Organic sludge is available		

CLIENTS	SONGWON INDUSTRIES. Korea		Remark
Model	NEW ELODE-3000S, 3.0meter Belt Width		Main Process Machine
Running Start	December 2013		
Operating term	3.1years		
Site Location	Ulsan city. KOREA		
Sort of Sludge	High Organic Sludge		
Sludge Characteristic	Non-Dewaterable sludge with high conductivity of 15,000μs.		impossible at existing ELODE
1st Machine & Input DS%	Multiple discs Press 83%wt ±3%		
일일 처리량 / Daily Throughput	1000kg x 20hours = 20ton		
ELODE 후 감량률 및 결과 Result of Before & After	Before (83%wt)	After (65wt)	10.3tonx300days=3,090ton reduced x$170 = **Yearly U$525,300 SAVED**
	20ton/day	9.7ton	
	Reduced 51.5%	Daily 10.3ton Reduced	
참고사진 Refer-Photos			
Electric Consumption	Average : 80kW~120kWh		
Electric-Consumption vs Dehydrated	Dewatering discharged/hr : 515liter, Max 120kW **= 0.27kWh**		**Old ELODE was 0.68kW/liter**
Others Feature	NEW UP-GRADED ELODE is lower the electricity consumption for higher the conductivity without spark or belt melting, always Guaranteed: +50% Electric consumption saved, Main drum 3 years guarantee, Belt 1year guarantee, High Organic sludge is available		

CLIENTS	EXPORT TO JAPAN		Remark
Model	NEW ELODE-050W, 0.5meter Belt Width		PILOT Machine
Running Start	March, 2014		
Operating term	2.9 years		
Site Location	Japan night soil Treatment Plant		
Sort of Sludge	Organic Municipal Sludge		
Sludge Characteristic	90% high organic Night Soil, 10% city sludge		
1st Machine & Input DS%	DECANTER 80%wt ±5%		
Daily Throughput	200kg/hr x 12 hours = 2.4ton		
Result of Before & After	Before (80%wt)	After (57%wt)	1.24tonx300days=372ton reduced x$?? = **Yearly U$?? SAVED**
	2.4 ton/day	1.16ton	
	Reduced 53.48%	Daily 1.24ton Reduced	
참고사진 Refer-Photos			
Electric Consumption	Average : 40kW~60kWh		
Electric-Consumption vs Dehydrated	Dewatering discharged/hr : 103liter, Max 60kW **= 0.58kWh**		**Old ELODE was 0.72kW/liter**
Others	NEW UP-GRADED ELODE Guaranteed: +50% Electric consumption saved, Main drum 3 years guarantee, Belt 1year guarantee, High Organic sludge is available		

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