



Increase your digester's capacity and efficiency with:

HIGH SHEAR MACERATION

In-line High Shear Maceration Technology:

- Providing the capability to reduce volatile solids to ultra fine sizes for increased surface area exposure and better de-watering
- Size reduction consolidates sludge, maximizing digester capacity
- Larger digester volume, combined with better surface area exposure, increases the amount of methane off gassing



Produce higher yields of methane gas



- **Designed for 24 hour continuous operation**
- **Low maintenance**
- **Rugged design**
- **Interchangeable rotor/stator combinations**
- **Self draining vertical design**
- **316L ss wetted parts (standard)**
- **CIP**
- **Flow rates from 1 to 550 gpm**
- **Rated up to 300 psi**
- **400° F maximum temperature (standard)**
- **Compatible with low or high total solid suspended concentrations**

*Special designs and materials
on request*

Contact

Phone: (910) 452-7059
Toll Free: (800) 733-3037 ext 241
e-mail: lholliday@ika.net
internet: www.ikausa.com

IKA®

IKA® Works, INC.
2635 Northchase PKWY SE
Wilmington, NC 28405

High Shear Maceration Technology

Consider the possibility of using existing wastewater sewage digesters or commercial digesters to increase methane gas production. The same digesters and pumps in the current process producing higher yields. Don't think it's possible? It is with the addition of an IKA® high shear in-line macerator.



An IKA® three stage machine utilizes rotor/stator technology for ultra fine maceration of wastewater sludge or commercial waste before delivery to the digester. Size reduction increases the surface area of the sludge, proving three distinct benefits:

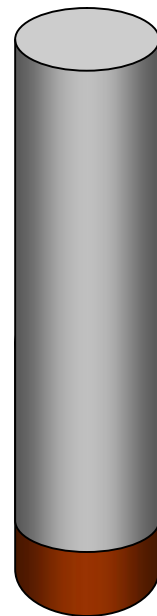
- Size reduction consolidates the sludge, maximizing the digester capacity and creates better dewatering.
- Increasing the surface area allows the bacteria present in the digester to come in to contact with more of the sludge, creating more efficient digestion.
- Because size reduction of the sludge leads to larger volumes deposited in the digester. In addition to increased surface area exposure, higher yields of methane gas are produced to be used as a power supply for heating in an anaerobic process or used for other utilities purposes.



Understanding Sludge Digestion

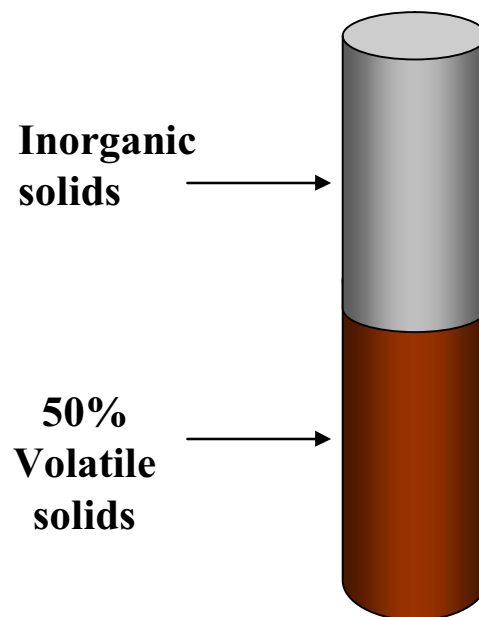
Waste water sludge is high in moisture content. Most sludge contains about 4% solids.

4% waste
water Solids →



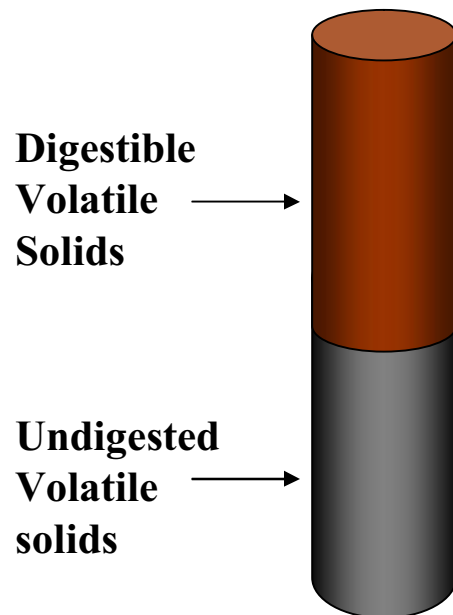
Volatile Solids

Of the 4%
sludge
solids, 50%
are organic
materials
that are
digestible
Volatile
Solids



Digestion of Volatile Solids

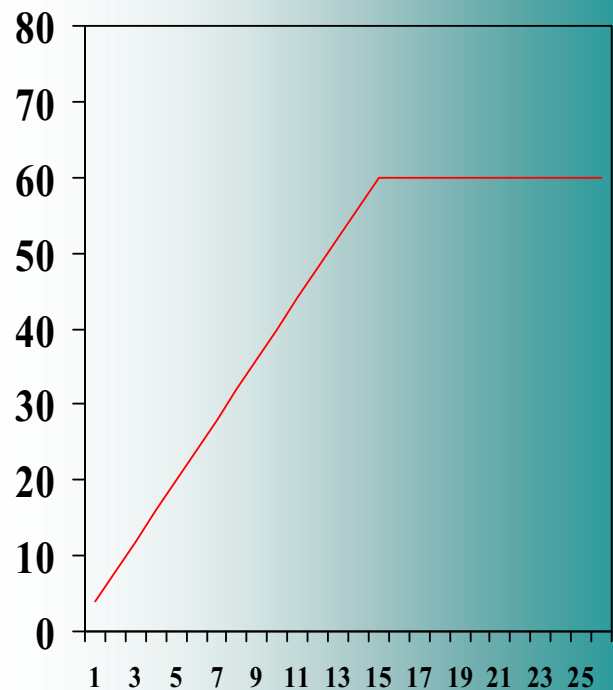
Of the 50% digestible volatile solids, as much as 60% is digested with current methods.



Digestion Time

Current digestion time for volatile solids depend on the digester size. However, digestion from start to finish can be completed in as little as 15 days.

— % Of Volatile Solids Digested



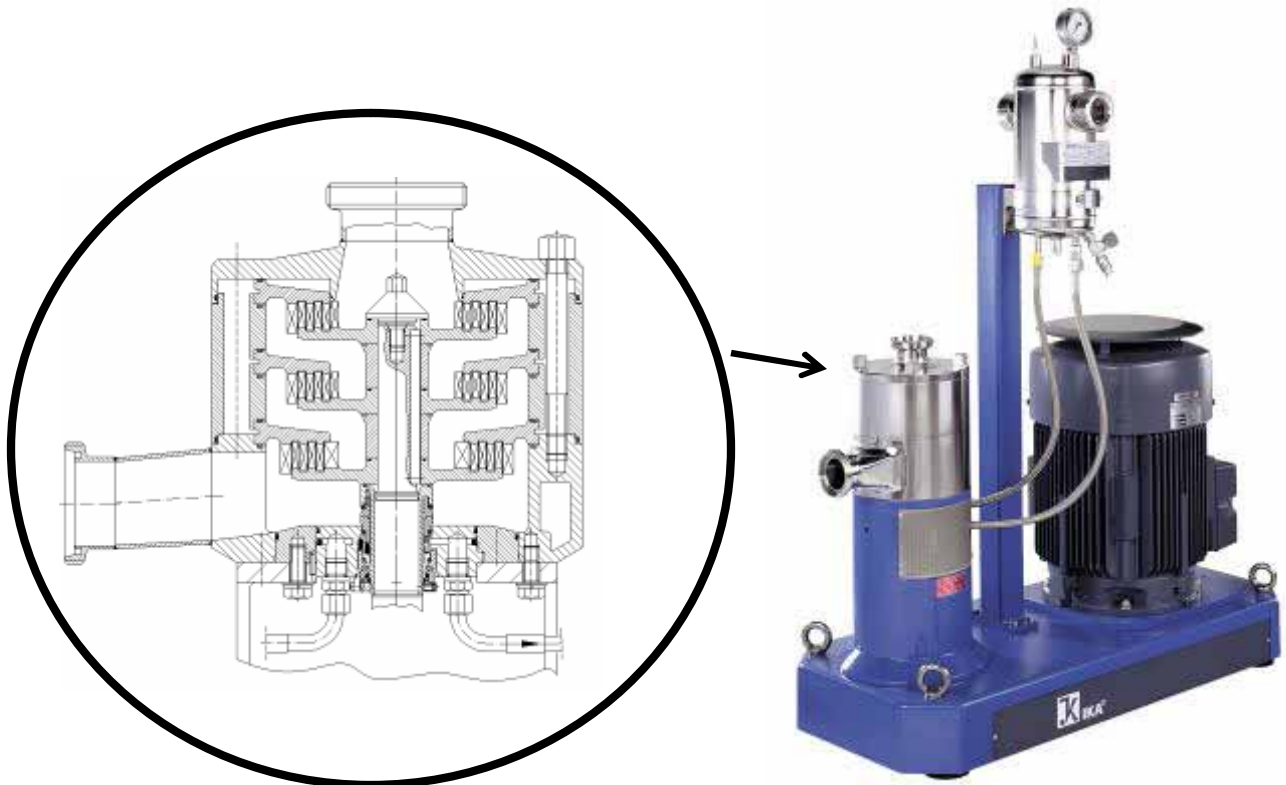
Anaerobic Digestion:

Anaerobic digestion is the most common method used for large scale digestion. Anaerobic digestion is a bacterial process conducted in the absence of oxygen. This process can be conducted as either ***Thermophilic*** digestion or ***Mesophilic*** digestion.

- Thermophilic digestion allows sludge to ferment in tanks heated to as much as 70° c. This allows the digestion process to complete in as little as two weeks
- Mesophilic digestion takes place at ambient temperatures and consist of storing the sludge in large tanks to allow the natural mineralization of the sludge over 15 to 30 days.

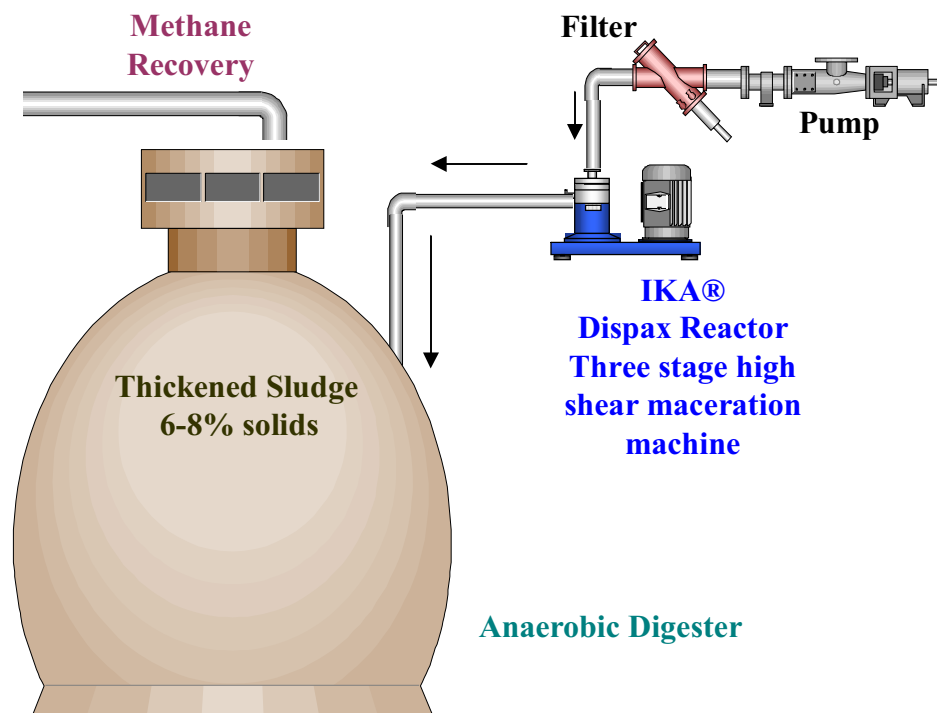
Performance of an IKA® Dispax Reactor with current digestion methods consist of:

Primary sludge, Waste Activated Sludge or commercial waste is pumped through the machine prior to depositing in to the digester. Three rotor stator combinations reduce the solids to ultra fine particle sizes. The reduction in waste solids to this level significantly increases the surface area, allowing easier access for the bacteria to come in contact with the waste. This increases the digestion efficiency of the volatile solids. Thus, higher methane yields are achieved which can be used as an energy source for heating in a Thermophilic digestion process.



Simple Installation

Installation of an IKA® Dispax Reactor in-line macerator is very simple and requires minimal process changes. The Dispax Reactor is simply inserted in-line after pumps used for delivery of sludge to the digester. In municipals the addition of an in-line filter prior the Dispax Reactor is recommend to account for inorganic solids that have bypassed the upstream screening process. *It's that simple.*



THE IKA® DISPAX-REACTOR DR 2000/..

- Suitable for operation up to 300 psi and 400°F
- Choice of different rotor-stators: super fine, fine, medium, coarse and 2P
- In-line or recirculation
- Interchangeable generators
- Tip speed 23 m/s
- Flow-rate of 1 - 550 gpm
- Noise level (Average) 88 dB(A)
- 316L stainless steel wetted parts (different materials RFQ)
- Double mechanical cartridge seal – silicon carbide seal faces (standard)

**The rotor/stator combinations can be changed and serviced without disturbing the mechanical seal.*

- Seal supply system with separate seal lubrication and cooling
- Vertical self draining design
- Durable belt and pulley drive reduces maintenance over conventional gear drives.
- Suitable for low or high total solid concentrates



Make Use Of Our Multiple Services:

- Design and fabrication of complete production systems
- Trial machines for on site testing
- Pilot plant test facility in Wilmington, N.C.
- Repair and service work on site or at our facility in Wilmington, N.C.
- Spare parts within 24 hours for most parts
- Start up assistance

IKA® Proudly manufactures in The USA



The IKA® Philosophy:

IKA® is one of the leading manufactures of mixing and dispersing machines employing approximately 450 people worldwide. 70 of these are at our facility in Wilmington, N.C. 10% of our total personnel are engaged in the field of research and development.

An IKA® product means a combination of the latest, innovative technology and highest quality. The use of an IKA® machine or system must be economically justified but at the same time must guarantee a constant product quality over a long period of time with guaranteed results.

We carefully establish a clear plan to determine which machines or systems are most suitable for each and every application.

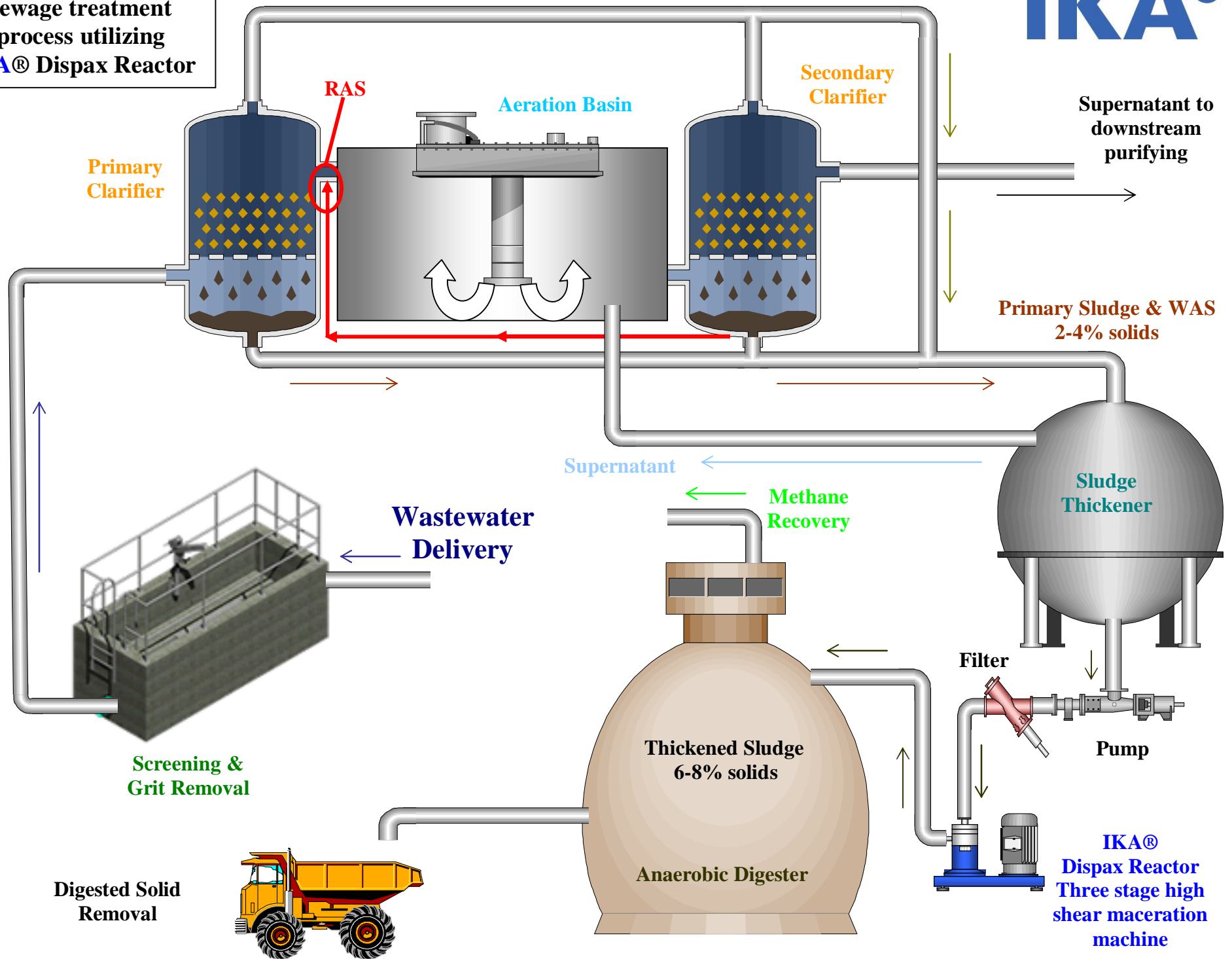
Our philosophy is "The product to be processed and the production time have to be matched in order to achieve the optimum result".

IKA®WORKS, INC.
2635 North Chase Pkwy. SE
Wilmington, NC 28405
lholliday@ika.net
www.ikausa.com
800 733 3037 ext 241

Typical wastewater
sewage treatment
process utilizing
IKA® Dispax Reactor

Scum Recovery →

IKA®



Primary Clarifier

RAS

Aeration Basin

Secondary Clarifier

Supernatant to downstream purifying

Primary Sludge & WAS
2-4% solids

Supernatant

Methane Recovery

Wastewater Delivery

Sludge Thickener

Screening & Grit Removal

Filter

Pump

Thickened Sludge
6-8% solids

IKA®
Dispax Reactor
Three stage high shear maceration machine

Digested Solid Removal

Anaerobic Digester