SAGD Produced Water Lime Softeners
Hot Lime Softeners

Since 1976, Ecodyne has supplied hot lime softeners for the removal of hardness, alkalinity, turbidity, oxygen, silica and other contaminants. We have several unique features in our hot lime softeners. Also included is on-site erection and pre-assembly, depending on the location and site access.

Hot Lime Softening can be used to mitigate these common problems and factors:

1. Silica and calcium carbonate scale formation
2. Scale formation in Boiler Tubes or OTSGs
3. Carry-over of Solids
4. Corrosion in OTSGs

Design Features

• Ability to treat feedwater at high temperatures (above 103°C) with no need to cool.
• Unit capacities up to 1200 m³/h or multiple units as required.
• Typical sizes up to 60 ft (18.3 m) diameter (field erected).
• Can continue operating during an oil slug event.
• Capable of treating hot produced water in the SAGD process.
• Robust in dealing with variations in temperature, flow rate and water quality.
• Higher temperature water allows for better silica removal.
• Small footprint required.

Versatility

• Capabilities include: clarification, heating, deaeration and can also be used in boiler feedwater applications.
• Able to remove hardness and other constituents such as silica, alkalinity and total suspended solids.
• Perform a large number of processes, purposes and operations within a single unit. Includes internal compartments for dirty backwash, clean backwash and deaerated storage.

Reduced Costs

• Low cost in consumable chemicals.
• Designed to minimize field erection costs.
• Less downtime for maintenance.
• Long service life (approximately 40 years).
• Almost no moving parts.

Recent Installations

• Jacos, Hangingstone
• Devon, Jackfish
• Esso Resources, Cold Lake
• Imperial Oil, Mahkeses
• Imperial Oil, Nabiye
• MEG Energy, Christina Lake
• Nexen, Long Lake
• Laricina, Germain Commercial
Warm Lime Softeners

Since the WLS concept was developed about 25 years ago, Ecodyne has customized the basic Reactivator-Clarifier design to accommodate warm lime operation as required for TSS hardness, alkalinity and silica removal. These units are used where steam is not available. Options for on-site erection depending on location and site access are also available.

As with hot lime softening, warm lime softening can be used to mitigate these common problems and factors:

1. Silica and calcium carbonate scale formation
2. Scale formation in Boiler Tubes or OTSGs
3. Carry-over of Solids
4. Corrosion in OTSGs

**Design Features**

- Lower operating temperature (70-90°C).
- Sealed roof for protection from the elements.
- Unit capacities up to 1800 m³/h or multiple units as required.
- Available unit sizes up to 118 ft (36 m) diameter and larger.
- Operated at atmospheric pressure.
- Long service life (approximately 40 years).
- Heavy duty scraper and recirculator drives.
- Automatic scraper lifting device.

**Recent Installations**

- CNRL, Wolf Lake
- Conoco, Surmont
- Husky, Tucker Thermal
- Husky, Sunrise
- STATOIL, Leismer
- Suncor, Firebag
The Ecodyne Difference

• Custom Engineering
• Shop Assembly and Trial Fit Capability
• Global Experience
• Industry Leader