EARTH SYSTEMS
Environment | Water | Sustainability

WATER TREATMENT EQUIPMENT

Neutra-Mill *rapid*TREAT 7000

MOBILE OR FIXED LOCATION TRUCK-MOUNTED MULTI-REAGENT MIXING AND DOSING SYSTEMS

The Neutra-Mill *rapid*TREAT systems are fixed plant or portable truck-mounted multi-reagent mixing and dosing systems designed for routine water treatment or emergency response. The systems are suitable for use with any dry powder reagent or dense solution, allowing the systems to be used to treat a wide range of water quality issues.

- Acid and Metalliferous Drainage (AMD)
- Turbidity control
- Algal control
- Nutrient pollution control
- Disinfection and chlorination
- Cyanide destruction
- pH control
- Metal control
- Salinity control

The *rapid*TREAT systems are portable, skid-mounted units that are sized to permit mounting on a flat-bed truck. This provides flexibility for sites that are difficult to access, and permits the system to be either used at a fixed location or moved to multiple locations. The systems are designed for mixing and dispensing many different types of reagents, making them suitable for a range of water treatment applications, including pH control, turbidity control, lowering metal concentrations, cyanide treatment, treating nutrient pollution, disinfection and chlorination.

Key components of the *rapid*TREAT system are the reagent preparation and storage tank, and the reagent dispersion system. The tank contains an internal axial mixer that ensures efficient dissolution and mixing of the reagent. The dispersion system can operate by gravity feed or by high-capacity pump, which allows reagent to be delivered using a monitor cannon or hose. The entire system – both the axial mixer and the pumping system – is powered by a single energy-efficient diesel motor, making the unit fully independent of mains power supply.

MODE OF OPERATION

The *rapid*TREAT can be mounted on a flat bed truck for portability, or placed on the ground at a desired location as a fixed system.

To operate, the slurry mixing tank is partly filled with water and the internal mixer is activated. Dry powdered reagents, such as hydrated lime, are then added to the tank from 25 kg or 1 tonne bulk bags. The amount of reagent added is determined by treatment requirements. Depending on the reagent used, up to 7,000 litres of slurry or solution can be mixed and stored in the system ready for dosing. General lifting equipment, such as forklift, backhoe, excavator or crane truck, can be used to assist with reagent addition.

For acid control, for example, up to 2 tonnes of hydrated lime powder can be added to the 7,000 litre tank to produce a slurry of up to 20–30 wt% solids.

Reagent mixtures often need to be periodically or semi-continuously agitated to prevent solids from settling. The reagent mixture can be distributed by gravity feed or using the pump-based dispersion system, which includes a spray cannon for rapid discharge (eg. emergency response applications). Dosing rates will vary depending on the specific water quality application being addressed.

For rapid dosing, it is possible to load and distribute one tank

(7,000 L) or more per hour, allowing up to 16 tonnes or more of reagent mixture to be dispensed per 8 hour day.

ADVANTAGES

- Ideal for both emergency response dosing and long-term treatment
- Suitable for use with a wide range of reagents to address multiple multiple water quality issues across a single or multiple sites
- Suitable for correcting water quality issues in dams, lakes, pit lakes, tailings facilities, stormwater ponds, process ponds, etc.
- Portable – can be used at multiple locations on a single site or across several sites
- Flexible dispensing options for sites with difficult or remote access
- Rapid set-up
- Simple operation and control systems
- High reagent throughput
- Fully self contained diesel powered pump and mixer – no external power requirements
- Ideal for remote sites
- Low running and maintenance costs
- Also suitable for use on site for fire-fighting, dust suppression and revegetation work.

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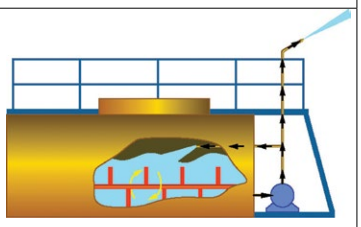
Technical Specifications		
Power System	Engine	Kubota turbo diesel motor (manufactured in Japan)
	Engine power	73 kW
	Rotation speed	2,600 rpm
	Fuel efficiency	20 L/h (at medium mixing speed)
	Standard fuel tank	180 L
	Optional large fuel tank	380 L
Mixing Tank	Design volume	8.2 m^3 (8,200L)
	Working volume	7.0 m^3 (7,000L)
Tri-axial Mixing System	Mixing system	A hydraulic motor provides reversible directions and variable speeds. Mixing is carried out by vertical paddles attached to the rotating horizontal axis. Recycle hydraulic jet mixing forms a tri-directional recycle flow including axial, radial and axial cycle flow. 
	Mixing direction	Clockwise and counter-clockwise
Slurry Pump	Flow rate	1,350 L/min
	Pressure at outlet	8 kgf/cm^2
	Transmission	Friction plate manual clutch
	Maximum solid content	Volume ratio 30; weight ratio 60
	Maximum diameter of granular material	10 mm
Dosing System	Dosing method	1. Direct gravity feed 2. Mounted slurry cannon 3. Portable high-pressure/high-volume spray gun (on hose)
	Configuration of spray guns	Mounted cannon and spray gun (optional) have extensive reach, covering large areas with high accuracy
	Maximum spread range	70 m for mounted cannon
	Length of hose	Manual or electric reel: 50 m (1.5″ or 2″)
Control System	Control systems	Optional manual to fully automated (depending on requirements)
	Options	Automated feedback from water quality monitoring equipment including pH, electrical conductivity (EC), turbidity, oxidation-reduction potential (ORP), level alarm
Other Parameters	Railing and platform	Sliding for bulk bag / pallet access
	Empty weight	3,520 kg
	Working weight	About 10,000 kg
	Optional accessories	Reel, reel hose, hose nozzle
	Total dimensional size	5.52 m (L) × 2.46 m (W) × 2.66 m (H)
Site Options		A range of site-specific options can be included depending on requirements
Spare Parts		Various spare parts kits can be provided to minimise potential down-time





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