

LIPO Bioprocess

Biotreatment of Vegetable and Animal Oil and Grease

Problem description

Oil and grease constitute a poorly biodegradable fraction of municipal wastewater and are normally treated separately at additional cost.

MADEP solution

MADEP has isolated bacteria and developed an application technique for the degradation of concentrated (up to 50% solids) aqueous mixtures of oil and grease. Several strains of bacteria having different optimal temperatures have been isolated.

Product	Temperature range (°C)	Degradation rate (batch process) kg (dry) / (m ³ reactor volume * day)
LIPO 1	20 - 45	19.2 - 38.4
LIPO 2	5 - 20	9.6 - 19.2
LIPO 2P	1 - 10	4.8 - 9.6
LIPO 3T	40 - 75	38.4 - 76.8

The bioprocess also includes the addition of specific inorganic nutrients

Advantages

- Improves performance of downstream biological treatment systems
- Significantly increases the capacity of existing oil and grease degradation without or with minor modification of existing treatment system (tanks and aeration)

Full-scale results at a municipal wastewater treatment plant

(averages during 2 years of continuous operation)

- Influent solids concentration : 35%
- Hydraulic retention time : 18 days
- Degradation rate : 50 kg COD/(m³ reactor * day) or 25 kg dry matter/(m³ reactor * day)

