Case Study

INGENIOUS PROBIOTICS

PROBIOTIC HYDROCARBON REDUCER CLEANS WASTE WATER SLUDGE

Probiotic Bioremediation Results

- ✓ Hydrocarbon levels reduced by 90% in vivo.
- ✓ Polycyclic Aromatic Hydrocarbons (PAH) reduced from 89.2mg/kg to 8.3 in vivo – well below required levels.
- ✓ Sludge volume reduced by 30% in vitro.
- ✓ Treated sludge fit for use as farm fertiliser.

PROBIOTICS OFFER AN ALTERNATIVE METHOD OF MANAGING CONTAMINATED WASTE WATER SLUDGE *WITHOUT* CHEMICALS

The Aim

Managing and disposing of sewage sludge is a severe environmental challenge on a global scale. The study aimed to demonstrate the effectiveness of microorganisms ('good' probiotic bacteria) on contaminated sludge from a wastewater treatment plant.

The Study

The study was carried out in 2019 by three entities from Luxembourg: Probiotic Group, manufacturer of **Provilan TERRAA+ Probiotic Hydrocarbon Reducer**; Luxcontrol, an independent certification agency; and Sidero, a public owned water treatment plant. Each entity performed their own tests independently. Sidero provided a baseline measurement of Polycyclic Aromatic Hydrocarbons - PAH 89.2 mg/kg.

1. Probiotic Group performed a 3-day in vitro test under laboratory conditions using a 1kg sample of sludge/mud provided by Sidero.

2. Sidero performed a 21-day in vivo test at their Mersch site under real conditions. Firstly, **Provilan TERRAA+ Probiotic Hydrocarbon Reducer** was poured directly into the household waste water intake pipes to remove mud, faeces and sludge internally. Secondly, the sludge and particulates were separated into a different tank and treated with **Provilan** again. (Note: non-probiotic water cleaning processes inside the treatment plant reduce PCB, heavy metals and particulates to make the water drinkable.)

Provilan TERRAA+ Hydrocarbon Reducer

The Results (independent reports from Luxcontrol)

1. **In vitro test under laboratory conditions:** after 3 days, the gross PAH of the 1kg sample reduced from 89.2 to 17.3 and the sludge/mud volume decreased by 30%.

2. **In vivo test on site:** after 21 days, the PAH had reduced from 89.2 to 30.5, 21 days (in poorly ventilated conditions over a 220m^3 area). 15 days after this, the client reported the gross PAH had decreased further, to 8.3. This 90% reduction of PAH is well below required levels.

The Conclusion

The reports show **Provilan TERRAA+ Hydrocarbon Reducer** successfully degraded and reduced the level of hydrocarbons (PAH) in the mud/sludge by 70% after 21 days and by 90% after 36 days. The probiotic microorganisms treated the mud/sludge, absorbed the hydrocarbon chemical pollutants and reduced volume simultaneously. As a result, the treated sludge did not need to be incinerated and could safely be used as farm fertiliser. This has significant financial and ecological benefits.

Contact Ingenious Probiotics to find out more:
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