

Recycleclean Systems AB
Biotechnology for surface treatment

Recycleclean BDS

Biological degreasing with oil-decomposing
bacteria in a fully closed system



Let Nature Do The Job - The Results are Better and You've No Worries

Recyclean BDS is a system for effective degreasing and cleaning of various types of metal surfaces, for example in connection with hot dip galvanizing, phosphatising, painting or galvanic surface treatment

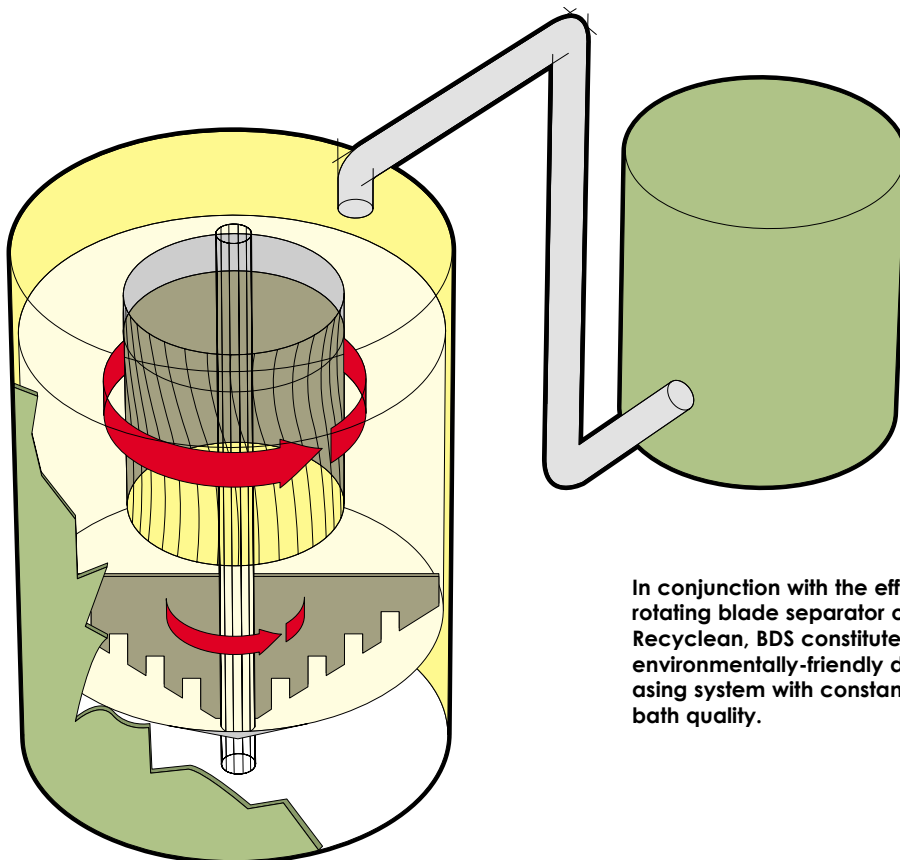
BioSys Power 2550 is the degreasant in the system which has a totally unique degreasing power on oil, grease and pigment dirt. The BDS process uses a solvent-free, water based degreasant for metals, BioSys Power 2550, which replaces lye, trichlorethylene and hydrocarbon-based solvents.

The system works at a temperature of around 40°C and is therefore very economic. The bacteria break down the oil, and the more oil is added, the more active and numerous the bacteria. BioSys Power 2550 contains special constituents which create optimum conditions

for bacteria growth. The bacteria can double in number every 20 minutes if they have access to "food". So the oil reduction can be substantial even if large quantities of oil and grease are added. The oil and grease content in the degreasant bath can be kept as low as between 100 and 500 mg/l. The transfer of contaminants to the next stage in the process is therefore minimum.

The sludge deposited contains only small quantities of oil and grease. The constituents have been selected so that no intermediate rinsing stage is required. On the contrary, the chemical pickling process is supported by BioSys Power 2550.

The bath composition and condition are determined by analysis and measurement of degreasant capacity as described in the instructions supplied, or by samples which are sent to our service laboratory. BDS works in a cycle where the quality can be kept at a constantly high level. The method reduces the time for degreasing and no subsequent rinsing stage is required in most surface treatment processes. A well-maintained bath can be kept for up to 10 years without replacement.



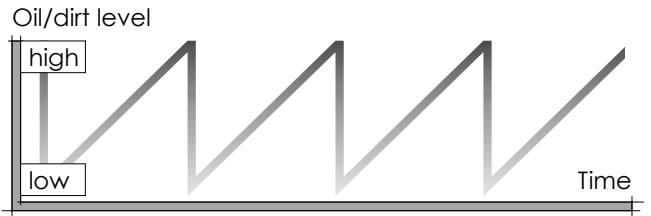
In conjunction with the effective rotating blade separator of the Recyclean, BDS constitutes an environmentally-friendly degreasing system with constant high bath quality.

Process Description

The degreasing bath circulates over a rotating separator. Keeping the temperature at 40° and blowing air into the bath establishes a self-generating growth of the natural oil-decomposing microbes.

The fluid pH value is checked in the separator, and pH-adjusting nutrient solutions are added automatically as required. The microbes are “planted” at the start and then multiply rapidly to spread through the entire degreasing system. The microbial activity breaks down the contaminants in several stages, forming carbon dioxide and water. The contaminants which cannot be decomposed, for example sand and blast material, sink to the bottom of the separator where they can easily be removed as sludge. The cleaned fluid is returned to the degreasing bath where it is continuously recycled. The continuous cleaning keeps the bath at a constant efficient level.

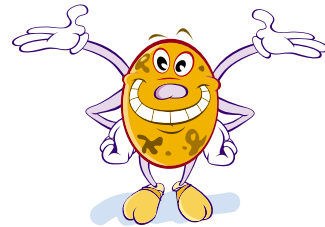
- No rinsing after degreasing
- Consistently high quality
- Efficient and time-saving
- Low temperature saves energy
- Bath life up to 10 years without replacement



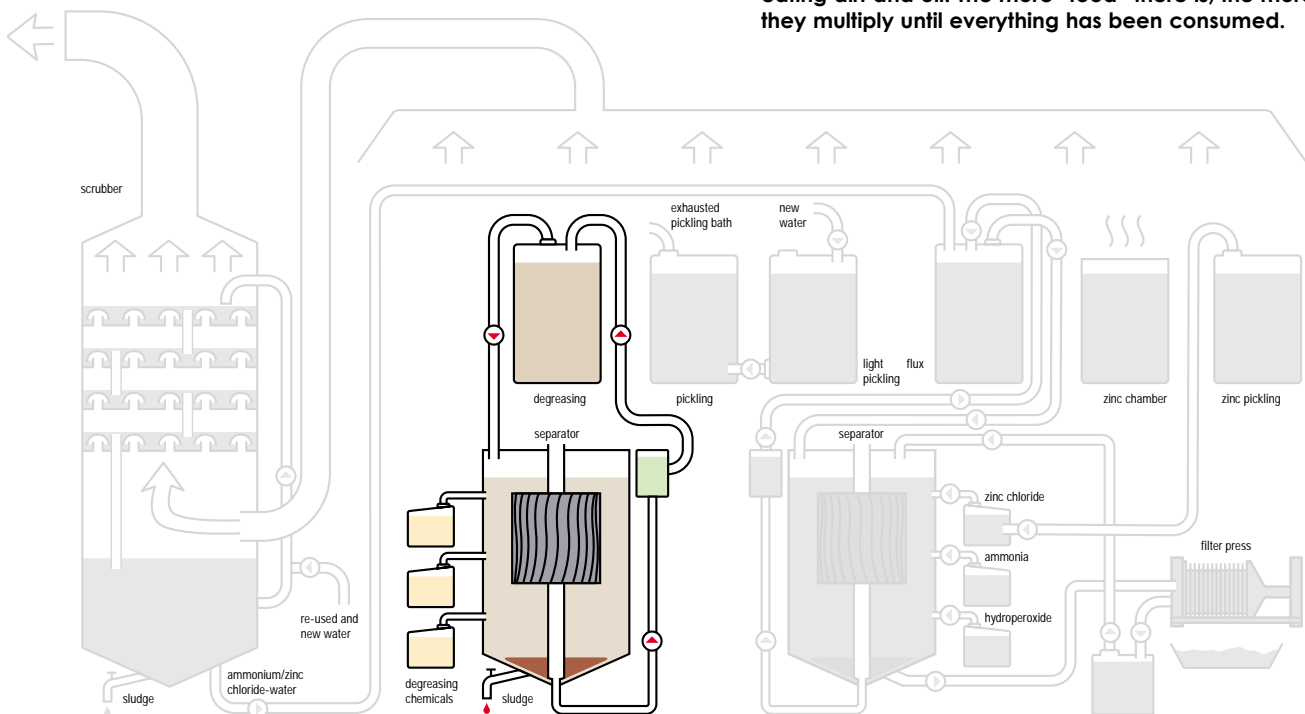
Traditional degreasing gives an irregular process between start up and necessary dumping



The bacterial method gives a continuous even cleaning which means fewer problems and better results



The bacteria working in the BDS process are beneficial and harmless, but have one great passion - they love eating dirt and oil. The more “food” there is, the more they multiply until everything has been consumed.



Biological degreasing using bacteria in a closed system is one of the most important elements of the Recyclean method for hot dip galvanizing

Technical Data

Function of the biological degreasing system

Environmental and Health Data

BioSys Power 2550 contains only a few additives, mainly surfactants, phosphate and additives in a combination which is not harmful to the environment. All components are tested and documented both separately and in combination. These test results are available on request. The product has a high degreasant effect on skin so if the concentrate comes into contact with skin, it should be rinsed away with plenty of water. The product is not otherwise harmful, corrosive or flammable.

Storage and Handling

BioSys Power 2550 is a concentrated fluid which should be stored in a heated room. Any spillage should be collected and rinsed away carefully with water to avoid accidents.

Physical and Chemical Properties

BioSys Power 2550 is a liquid surfactant mixture of environmentally friendly nature. Only silicates and ammonium compounds are used as sequestering agents.

Appearance: 25°C clear liquid

Density at 25°C: 1.55 g/cm³

Clarity interval: 20 - 50°C.

Flame point: non-flammable

pH of 10% solution: 10.9

Viscosity at 25°C: 10 mNs per m²

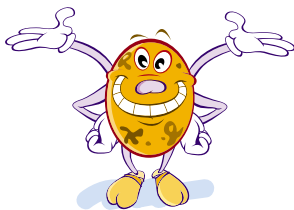
Surface tension: 35 mN per m² (10% solution, Du Noüy)

Dilution: The concentrate can be mixed with water at a concentration of 2 - 5% for normally soiled objects and 5 - 10% for heavily soiled objects

Data: Environmental and health data on request

The supply includes:

Separator/reactor
Metering pump for BioSys Power 2550, 10+
Automatic pH control
Circulation pump
High pressure fan for air injection
Automatic control unit (also available with computerised remote monitoring)



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The system also contains:

BioSys 10+ nutrient additive

RecyBact: Approx. 500 variants of bacteria, including *Pseudomonas Alcaligenes* which is one of the most effective oil-consuming bacteria. The addition of BioSys nutrient additive adapts the bacteria to the specific bath environment. Under normal conditions the bacteria double in number every twenty minutes and have the capacity to break down large quantities of grease, oil and dirt. The residual products are carbon dioxide, water and biological concentrate of biomass consisting of dead bacteria.

Area of Application

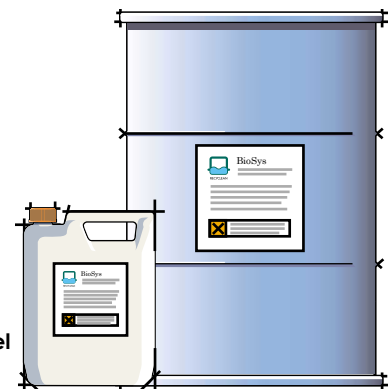
Degreasing and cleaning of various types of material prior to phosphatising, painting or hot dip galvanizing.

Temperature: highly effective cleaning in a temperature range of around 30 - 60°C

Application method: intended for dipping and/or spraying

Degreasing capacity: can emulsify large volumes of oil, grease and pigment. The product composition gives extremely high cleaning capacity even at 40°C.

Alkalinity: the solution ready for use has a pH of approx. 9.0. The low alkalinity means no rinsing stage is required in most contexts.



BioSys Power 2550 is available in a 1,000 litre container, 200 litre barrel or 25 litre plastic can

Separator sizes

	Height [mm]	Diameter [mm]	Flow [m ³ /h]	Volume [litre]	Weight [kg]	Power [watt]
BDS 10	2.015	950	1,0	650	100	90
BDS 25	2.950	1.300	2,5	1.850	250	150
BDS 50	2.950	1.900	5,0	3.700	500	150
BDS 100	2.950	2.850	10,0	7.700	900	150

Recycleclean Systems AB

Sweden

Recycleclean Systems AB, E A Rosengrens Gata 9-11, SE-421 31 Västra Frölunda

Tel: +46 (0) 31-866 750

Fax: +46 (0) 31-864 372

E-mail info@recycleclean.se