

Bacteria cultures ¹⁾	Solvents	Water-based	Tarmac / asphalt surfaces	Concrete surfaces	Plastic and other surfaces	"Fresh" oil	"Old" oil	Dilution	pH value	Concentration	What kind of oil?
X		X	X	X		X	X		ca. 7	100%	Fuel, diesel, heating oil, engine oil, gearbox oil, hydraulic oil etc.

Specification: BioTA is a biological oil stain remover for tarmac and asphalt cleaning. The aqueous cleaning suspension is a blend of bacteria cultures, nutrients and surfactants. BioTA is particularly of use when old oil stains on tarmac and asphalt surfaces have to be cleaned. Enzymes and bacteria degrade the oil contamination biologically and ecologically and they oxidise the hydrocarbon compounds into water (H₂O) and carbon dioxide (CO₂). The speed of this digestion process is dependent on many different conditions. Temperature, humidity and oxygen are the most important ones. At an ambient temperature of approx. 15°C the complete digestion process of the hydrocarbon normally takes 4-6 weeks. For every 10°C above or below this guide temperature the speed of digestion increases or decreases by approx. 50%. However, the working temperature should not be higher than 40°C, otherwise the bacteria will be killed. At temperatures lower than 4°C the bacteria "sleep", but at higher temperatures they "awake" again. BioTA cleans the top layer of bituminous surfaces like tarmac and asphalt. Due to the normally water repellent property of bituminous surfaces, a deep cleaning effect can not be achieved.

Note: Oil contamination on asphalt or tarmac surfaces will etch or remove the top layer of the surface. This is caused by a chemical process. Spilled mineral oils combine with the asphaltic oils contained in the asphalt and they soften the top layer of the surface. This process is irreversible and the use of BioTA can not remedy this situation. BioTA is exclusively designed to clean the top layer of tarmac and asphalt surfaces. A colour change of the road surface from grey to black is the result of a breaking down of the top layer of the surface. This happens when the top layer is exposed to oxygen and oxidises. Consequently the black underlayer comes to the top.

Application: Shake the container thoroughly before use to put the bacteria into suspension. Water wet the contaminated surface. Apply BioTA evenly according to size of the contaminated surface. Work in intensively with a commercial scrubbing brush (depending on the possible application, technical equipment - like pressure cleaner, steam cleaner or other cleaning equipment as well as the addition of warm water - can improve and accelerate the cleaning result). In case of heavy contamination an application time of at least 20-30 minutes is required to achieve a visible cleanliness. During the application the contaminated surface must be kept wet with water and scrubbed with a brush. This avoids that the loosened hydrocarbons settle on the floor again. Depending on size and intensity of the oil contamination, a reapplication of BioTA could be required. After having completed the application, rinse off the cleaned surface with excess of water and absorb the contaminated water with conventional products or pick it up with technical equipment.

1) Annotation to the bacteria cultures: The effectiveness of the bacteria depends on many different factors. Due to the biological property of the bacteria, conditions like sufficient oxygen, nearly neutral pH value, adequate temperature, sufficient humidity and appropriate nutrients (for example: oil) are important conditions for an uninterrupted biological digestion process. Following chemical substances have a toxic effect on bacteria cultures: disinfectants, bactericides (bacteria-killing chemical agents), acids, alkalis etc. - generally all substances which have harmful effects on man too. Other application conditions negatively affect the work of the bacteria: insufficient oxygen, strong UV radiation, radioactive radiation, lead and other heavy metals - which, in a certain occurrence, are also harmful to man.