

Immobilizing Organic Pollutants in Soil

SorbaSolv™ is a ground cellulose modified by the addition of stearic acid groups chemically bound at the hydroxy sites. It is extremely water repellant to such a degree that it will separate oil from water emulsions. Our investigations have shown that SorbaSolv™ will separate oil from different soils reducing the leaching characteristics from ten to twenty fold.

Tests were run using soil containing 20,000 ppm of a labeled lubricating oil with additions of 1% by weight of SorbaSolv™ to sandy soils, high clay and high humic soils. 100 grams of test soil with and without SorbaSolv™ addition were placed in columns and 200 ml of pH 5 water with 1% isopropanol addition was circulated through the test bed for a period of 24 hours.

The leach water was then tested for oil content with the following results:

	<u>Control Soil</u>	<u>1% SorbaSolv Soil</u>
Sandy Soil	6000 ppm oil	400 ppm oil
Humic Soil	700 ppm oil	50 ppm oil
Clay Soil	250 ppm oil	0 ppm oil

Tests were then made on the leached soils by extraction using 1-1-1 Trichloroethane after soils had been washed with water and SorbaSolv™ layer had been skimmed off. Samples oven dried prior to extraction:

	<u>Control Soil</u>	<u>1% SorbaSolv Soil</u>
Sandy Soil	11000 ppm oil	900 ppm oil
Humic Soil	25000 ppm oil	13000 ppm oil
Clay Soil	7000 ppm oil	2500 ppm oil

From other work, it appears that higher soil moisture favors best SorbaSolv™ absorption as does more intimate mixture. In practice, the use of a common garden tiller appears sufficient for contamination at the surface and depths of 2 feet.