



# CWRM Holdings



## ***Classification and Environmental Impact Assessment of Virosorb with Absorbed Lubricating Oil;***

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### **Executive Summary**

The chemical and biological characteristics of Virosorb were determined by analysing a representative sample for its total inorganic and organic content and by leaching using the Toxicity Characteristic Leaching Procedure (TCLP) as specified in the Department of Water Affairs and Forestry's Minimum Requirements for the Handling, Classification and Disposal of Hazardous Waste. The results have been used to classify the material and together with the Water Research Commission's guidelines "Permissible Utilisation and Disposal of Sewage Sludge", the environmental impact when using the material as a soil ameliorant has been determined. In addition, the possible environmental impact of absorbing 1.5 parts by mass of lubricating oil onto Virosorb has been assessed.

The results show that Virosorb has a low moisture content of ~7% and can absorb large amounts of water (up to 420% by mass) and lubricating oil (up to 180% by mass). Virosorb contains reasonable amounts of K, N and P which will provide the nutrients required to promote biodegradation and fertilise soil. Virosorb leaches some Mn, when subjected to the TCLP test and, therefore, formally classifies as a high hazard material according to the Minimum Requirements, but it delists for disposal to a general waste site due to the relatively low amounts of Mn leached and the low quantities that would be required to be disposed.

Virosorb can be used to ameliorate soil and according to the guidelines at least 8 tons per hectare per year can be used.

An evaluation of lubricating oil absorbed at a mass ratio of 1.5 parts oil and 1 part Virosorb showed that the product formally classifies as a high hazard material according to the Minimum Requirements but delists for disposal to any HH, Hh or GB landfill that is permitted to accept such waste. The oil contains Zn compounds as an additive and, therefore, this element leaches in reasonable amounts from the Virosorb / lubricating oil product. However, it can be suppressed by the addition of lime and it is proposed that about 4% of lime be added prior to disposal to reduce the potential impact of the waste on the landfill.

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