



## **Hydrological properties of natural and reconstituted soils: compared methods.**

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Among the physical parameters of soil, the hydrological properties fulfil an important role in illustrating its quality. The trend of the water retention curve indicates the condition of the soil and allows us to define, together with chemical parameters, its eventual state of decline.

This work aims to describe the hydrological properties of different types of soils using various techniques and to compare the results. The soils examined can be subdivided into two types: natural soils and reconstituted soils obtained by a chemical mechanical treatment (patented by m.c.m. Ecosistemi s.r.l.) where an initial disaggregation is followed by a reconstitution incorporating soil improvers, by a further polycondensation with humic acids and a final restoration.

This study is part of a LIFE+ project, co-financed by the European Union and is entitled “Environmental recovery of degraded soils and desertified by a new treatment technology for land reconstruction” (Life 10 ENV IT 400 “New Life”). It aims to test the effectiveness of the reconstitution treatment of the soils in combatting their decline. Natural soils, on which this work is concentrated, are extreme soils: sandy soil (86.2% sand), silt loam soil (42.5% sand, 49.9% silt), clayey soil (54.6% clay, 38.5% silt); reconstituted soils were produced from these. Samples were taken to carry out analyses on water retention through the use of Richards pressure plates. Other samples were used to determine the saturation point and to carry out trials in pots in order to determine the moisture at the permanent wilting point. The information obtained from these laboratory tests were compared to the results of soil pedofunctions.

**Keywords:** Reconstructed soils, Water retention, Permanent wilting point