VERMICAST SAMPLES

Hill Laboratories tests vermicast materials using test profiles that have been designed primarily for composts and which are based on published Australian Standards for compost materials. These compost profiles can be applied to solid vermicast samples but they are generally unsuitable for liquid extracts from these samples in terms of the individual tests offered and the reporting format for these profiles. Liquid vermicast products will no longer be analysed at Hill Laboratories.

Solid Vermicast Samples

- Solid vermicasts are materials produced by the action of earthworms grown in an environment of organic wastes such as food and feed scraps, animal manure, crop residues, biosolids, wastes from animal processing, waste paper etc.
- The composition of vermicast samples reflect the nature of the raw materials used during the production of these materials. For example, worms fed a diet rich in animal manure will generally produce products with relatively high levels of nitrogen.
- The ability of worms to grow and multiply and to recycle animal and vegetable wastes is utilised to produce an “organic-rich” material with desirable biological properties, eg., useful bacteria and enzymes etc, which can be used as a soil conditioner or soil amendment.

Liquid Vermicast Products (for information only)

- Vermicast liquids are the accumulated liquors which naturally leach from moist vermicasts or, they may be produced by irrigating ‘solid’ vermicasts with water and collecting the combined washings.
- These liquids are often recommended for application to pot plants, glasshouse crops, and other high value crops and vegetables and may be used as a soil innoculant.
- These liquids are composed predominantly of water and contain low levels of dissolved nutrients.
- Vermicast liquors are different to hydroponics solutions, which are inorganic chemical solutions used undiluted as a total plant nutrient source. By contrast, vermicast liquors are based mainly on soluble organic components and may be diluted for application to plants. For this reason, comparisons between vermicast liquors and hydroponics solutions are generally invalid Both of these types of solutions are much too dilute to be classified as liquid fertilisers.

Sampling Instructions

We suggest that you collect several small ‘grab samples’ from the bulk of your material and combine these to form a composite of about one kg and store it in a stout plastic bag or container.

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Summary of Analytical Profiles – Vermicast Samples

Profile Name	Profile Code	Tests Reported	Price
Basic Compost[1]	BCs	Dry matter, N, P, K, S, Ca, Mg, Na, Fe, Mn, Zn, Cu, B, OM, C:N Ratio	$105
Complete Compost[1]	CC	Dry Matter, N, P, K, S, Ca, Mg, Na, Fe, Mn, Zn, Cu, B, OM, C:N Ratio, Cd, Cr, Pb, Ni, Hg, As	$170
Standard Compost Profile	StdComp	BCs + WEB	$160
Heavy Metals	HC	Cd, Cr, Pb, Ni, Hg, Zn, Cu, As	$90
Profile Name	**Profile Code**	**Tests Reported**	**Price**
Pesticides Screen	Multires	Multi-residue (>180 compounds)	$260
Acid Herbicide Screen	Acidherb	2,4-D, 2, 4 5 -T, Triclopyr etc	$250
Water Extractable A[2]	WEA	pH, EC, Soluble Salts	$25
Water Extractable B[2]	WEB	pH, EC, Soluble Salts, NO3, NH4, P, S, K, Ca, Mg, Na	$55

1. Elements in the Basic and Complete Compost profiles are analysed as "totals" and reported on a dry weight basis.
2. Elements in the Water Extractable profiles provide a "plant available" measure and are reported on a fresh weight basis.

These prices are NZ$ and exclude GST. Prices effective March 2010 and may be subject to change.

Description of Analytes:

Dry Matter

We have adopted the convention of reporting the concentration of organic matter, mineral nutrients and heavy metals in solid samples on a 'dry basis' as per the Australian Standards for composts. The sample dry matter is also reported so that these values can be converted to an 'as received' basis if required.

$$\text{Results (as received)} = \text{result (dry matter basis)} \times \left(\frac{\textit{Dry Matter \%}}{100} \right)$$

Reporting Units

% = g/100g = g analyte / 100g compost
mg/kg = ppm = mg analyte / kg compost
(to convert mg/kg (ppm) to %, multiply x 0.0001)

Organic Matter

As with composted material, the organic matter in the vermicast may be beneficial for soil condition and structure.

pH and Soluble Salts

The pH and Electrical Conductivity (EC) are determined from fresh samples and reported on an 'as received' basis. The pH result indicates whether the material is acidic, neutral or alkaline.
Soluble salts are determined directly from the EC value and provide an indication of the level of plant available inorganic nutrients in the sample.

Nutrients

Nitrogen, phosphorus, potassium, calcium, magnesium, sodium and sulphur are essential major elements for plant growth. Trace elements iron, manganese, zinc, copper and boron are also important.

Heavy Metals

Some vermicasts may contain elevated levels of heavy metals which originate from the waste materials consumed by the worms. High levels of some of these metals may mean that the samples are unsuitable for use in organic farming systems.

Pesticides

Over 180 organo-nitrogen, organo-phosphorus and organo-chlorine compounds are included in the multi-residue screen which covers almost all of the common agricultural chemicals used in New Zealand.

References

Australian Standard, 1997. *Composts, soil conditioners and mulches.*
Standards Australia, AS4454-1997.

This Technical Note has been produced specifically for vermicast products in consultation with the New Zealand Earthworm Association, the New Zealand Earthworm Federation and organic growers.