

Hong Kong Organic Resource Centre

Compost and Soil Conditioner

Quality Standards

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HONG KONG ORGANIC RESOURCE CENTRE

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Compost and Soil Conditioner Quality Standards

Compost Maturity		Products must pass one of the tests from Group A AND one of the tests from Group B		
		<u>Group A</u>		<u>Group B</u>
		1. Ammonia conc. ≤ 700 mg/kg dw		1. Carbon to nitrogen ratio ≤ 25
		2. Ammonia: nitrate ratio ≤ 3		2. Oxygen demand ≤ 0.4 g O ₂ /kg TS/hr
		3. Volatile organic acids conc. ≤ 500 ppm dw		3. Carbon dioxide evolution ≤ 2 g C/kg VS/day
Compost Quality	Foreign Matter	Stones larger than 5mm $\leq 5\%$ dw Man-made Foreign Matters include glass, plastic and metal larger than 2mm $\leq 0.5\%$ dw		
	Heavy Metal	Unit : mg/kg dw		
		<u>Organic Farming</u>	<u>General Agricultural Use</u>	<u>Non-Agricultural Use</u>
		Arsenic ≤ 10	Arsenic ≤ 13	Arsenic ≤ 41
		Cadmium ≤ 1	Cadmium ≤ 3	Cadmium ≤ 39
Chromium ≤ 100		Chromium ≤ 210	Chromium ≤ 1200	
Copper ≤ 300		Copper ≤ 700	Copper ≤ 1500	
Mercury ≤ 1		Mercury ≤ 1	Mercury ≤ 17	
Nickel ≤ 50	Nickel ≤ 62	Nickel ≤ 420		
Lead ≤ 100	Lead ≤ 150	Lead ≤ 300		
Selenium ≤ 1.5	Selenium ≤ 2	Selenium ≤ 36		
Zinc ≤ 600	Zinc ≤ 1300	Zinc ≤ 2800		
Physicochemical Properties	pH 5.5 – 8.5 Organic matter $> 20\%$ dw Moisture 25 – 35%			
Pathogen	<i>Salmonella sp.</i> ≤ 3 MPN/4g <i>E. Coli</i> ≤ 1000 MPN/g			
Seed Germination Index	Dilution : solid to water ratio of 1:5 (wet weight) Seed Germination Index $\geq 80\%$			
Nutrient content	Total N + Total P + Total K $\geq 4\%$ dw			

Compost and Soil Conditioner Quality Standard Remarks

	Test Method Code		Test Method Code
Compost Maturity			
<u>Group A</u>		<u>Group B</u>	
Ammonia concentration	TMECC 04.02-C	Carbon to nitrogen ratio	TMECC 05.02-A
Ammonia: nitrate ratio	TMECC 05.02-C	Oxygen demand	TMECC 05.08-A
Volatile organic acids concentration	TMECC 05.10-A	Carbon dioxide evolution	TMECC 05.08-B
Compost Quality			
Foreign Matter			
Stones larger than 5mm		TMECC 03.08-A	
Man-made Foreign Matters include glass, plastic and metal larger than 2mm			
Heavy Metal (For Organic Farm, Conventional Farm and Non-Agricultural Use)			
Arsenic	TMECC 04.06-AS	Nickel	TMECC 04.06-NI
Cadmium	TMECC 04.06-CD	Lead	TMECC 04.06-PB
Chromium	TMECC 04.06-CR	Selenium	TMECC 04.06-SE
Copper	TMECC 04.06-CU	Zinc	TMECC 04.06-ZN
Mercury	TMECC 04.06-HG		
Physicochemical Properties			
pH	TMECC 04.11	Moisture content	TMECC 03.09-A
Organic matter	TMECC 05.07-A		
Pathogen			
<i>Salmonella sp.</i>	TMECC 07.02-A1-2	<i>E. Coli</i>	TMECC 07.01-B
Nutrient content			
Total N (Count as N)	TMECC 04.02-A	Total K (Count as K ₂ O)	TMECC 04.04-A
Total P (Count as P ₂ O ₅)	TMECC 04.03-A		
The above test method codes are based on <i>Test Methods for the Examination of Composting and Compost (TMECC)</i> (Eds. W.H. Thompson (Chief) Ed.), P.B. Leege, P.D. Millner & M.E. Watson, 2002. The USDA and US Composting Council, USA.), please refer to the book for test method in details.			
Seed Germination Index			
Seed Germination Index using distilled water mixed with fresh compost product in ratio 5:1 (calculated in wet weight), distilled water was added and the mixture was shaken for 30 minutes. 10 ml of the filtered mixture would be extracted and added to filter paper in a sterilized Petri dish, after that 10 cress seeds (lettuce seeds are also accepted) are evenly distributed on the filter paper. The set up would be inoculated in dark condition in 25°C for 48 hours. Control sample is made using distilled water instead of the mixture extract. After counting the number of seeds germinated and measuring the length of roots, Seed Germination Index was calculated as follow:			
$\text{Seed Germination Index(\%)} = \frac{\text{Germination rate in product mixture} \times \text{root length}}{\text{Germination rate in control sample} \times \text{root length}} \times 100\%$			

Compost and Soil Conditioner Classification

Compost and Soil Conditioner Classification

Class \ Test		Compost Maturity	Compost Quality	Seed Germination Index	Nutrient content
Good Quality	Compost used as Fertilizer	✓	✓	✓	✓
	Compost used as Soil Conditioner	✓	✓	✓	
Pass	Compost used as Fertilizer		✓	✓	✓
	Compost used as Soil Conditioner		✓	✓	

Explanation

Good Quality	Passed all required test criteria. Can be used without limitation. The product shall be classified and labeled as “Organic Farming”, “General Agricultural Use” or “Non-Agricultural Use” according to their heavy metals content.
Immature	Passed Compost Quality test and Seed Germination Index test but could not pass compost maturity test. Can be used with moderate amount for specific purpose or used under instructions. The product shall be classified and labeled as “Organic Farming”, “General Agricultural Use” or “Non-Agricultural Use” according to their heavy metals content after maturation.