



## **EM Activation Instructions:**

### **How to culture EM and extend it up to 22 times its original volume and activate the microbes for better results.**

**Supplies:** EM inoculant, molasses, pH paper, airtight plastic container for extension / activation, thermometer, heat source (optional), EM Ceramic Powder (optional for soil applications), and measuring unit.

**Ratio:** 1 part EM, 1 part molasses, 20 parts clean pure water (no chlorine), 1-2 Tsp/gallon EM Ceramic Powder (optional). If unchlorinated water is not available, let tap water stand in extension container for a couple days to allow the chlorine to evaporate off.

**Procedure:** Bring 20 parts water up to 120 degrees then dissolve the molasses in the water. Let cool to 110 degrees or below and add EM. Place into plastic extension container. Make sure that there is minimal airspace in the container after the mixture is poured in. Activating EM (Extended EM, or AEM) is a mostly anaerobic process; thus the presence of excessive oxygen is not desirable. Keep the extension as warm as possible. If you can keep the EM between 85-95 degrees it should activate in approximately 4 days. If the extension is kept between 70-80 degrees then let it grow for 5-7 days. Depending on your technique and extension conditions, it may take anywhere from 4-14 days. You know the EM is ready when it the pH drops below 3.7. If your pH does not drop below 3.7, either the process is not finished or your EM did not extend properly and should be discarded. If your pH continues to drop (to 3.0 or 2.0) this is perfectly normal and the EM is fine. As the EM activates it will “off gas” so you will need to “burp” it by unscrewing the lid and letting the built up gasses escape. If done in a glass container, the built up pressure may break the container. The end product should smell slightly sweet and pickled. Remember that EM is alive and does not like to be shaken or stirred any more than we do. The more caring and love that you incorporate into the process the better the extension you will end up with.

**Note:** EM Extension, unlike the bottled EM, is best used within 7 days. It may last up to 1 month but should be used within this time. Do not try to extend an EM extension. We cannot guarantee the results. If you are making large quantities of extension and it is not feasible for you to heat large quantities of water don't worry, as these are live organisms the rules are flexible. First put some water into the extension container, heat a few gallons separately and dissolve the molasses into it, then add it to the extension container. It is very important that the molasses is completely dissolved. It is also desirable to start with the water as warm as possible, as the microorganisms will proliferate faster in the warmer water. Note here that the EM should never exceed 110 degrees since yeast begins dying at 115 degrees.

**Simple way:** Take a 1 gallon milk jug and fill it  $\frac{1}{4}$  the way full of filtered water, add  $\frac{3}{4}$  of a cup of molasses. Screw the lid on tight and shake vigorously until the molasses is dissolved completely. Then add  $\frac{3}{4}$  of a cup of EM and fill the rest of the way with filtered water. Screw the cap back on and “burp” it to let out excess gas as necessary.

**Dilution Ratios for Application:** These also are only guidelines. You may change the ratios to suit your personal circumstances.

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|-----------------------------------|---|
| 1. Agricultural applications:     | 1: 300-1,000 parts water                                |
| 2. Waste treatment: solid wastes: | 1:100-5,000 (drench and compost it)                     |
| 3. Liquid wastes:                 | 1: 10,000 parts liquid wastes repeated every 7-14 days. |

For more information on EM visit:

**[www.scdworld.com](http://www.scdworld.com), [www.emtrading.com](http://www.emtrading.com) or [www.emtech.org](http://www.emtech.org)**

## EM DILUTION GUIDE

	<u>EM</u>	TO	<u>WATER</u>
1: 50	1 tsp 4 tsp 5 Tbsp		1 Cup 1 Quart 1 Gallon
1: 100	1 tsp 2 tsp 2.5 Tbsp		2 Cups 1 Quart 1 Gallon
1: 500	3/4 tsp 1.5 tsp 2 Tbsp		2 Quarts 1 Gallon 4 Gallons
1: 1000	3/4 tsp 1 tsp 1.5 tsp		1 Gallon 6 Quarts 2 Gallons
1: 10,000	3/4 tsp 1 Tbsp		10 Gallons 40 Gallons

## COMMON KITCHEN MEASUREMENTS

Units	tsp	Tbsp	Cup	Quart	ml
tsp	1	1/3	*	*	5
Tbsp	3	1	1/16	*	15
Cup	48	16	1	1/4	240
Quart	*	*	4	1	950