

Best Management Practices for Envita™: Jar Testing

When using Envita with liquid fertilizer it is important to perform a jar test before a batch is mixed up for the planter. Jar testing will give the grower an indication of whether or not the Envita will mix into the fertilizer without thickening, gelling, or separating. A jar test is not a guarantee that a mix of Envita and the intended fertilizer will not have compatibility issues in a full batch. The jar test is however an extremely good indicator that it is unlikely there will be a problem when a full batch is mixed up.



Factors to Consider:

To conduct a jar test, you will need the following supplies:

- **Quart jar with lid:** It is preferable to use a clean, glass quart jar with a lid. This will allow you to observe any reaction. Make sure the jar is clean so that previous contents don't affect the test.
- **Measuring device(s):** A couple of graduated cups and/or pipets or syringes for measuring out liquids. You will need a clean measuring device for each ingredient you measure.
- **Mixing utensils:** You will need several mixing utensils like a whisk or paint stick.
- **Products being tested:** You will need the fertilizer you intend to test and Envita.
- **Personal Protective Equipment (PPE):** Because some products, such as an insecticide or herbicide, can be dangerous always wear PPE. Use rubber, latex, or nitrile gloves to protect your skin and protective glasses or a face shield to protect your eyes.
- **Water:** Have plenty of water on hand. Sometimes jar testing can be very messy, especially if a reaction occurs.
- **Calculator:** There will be some math involved.



Action Plan:

- Before you begin, measure the quantities of each product that you will need for your application rate based on the volume of your jar.
 - For our example, we will be adding Envita to 10-34-0 starter fertilizer. Our applied rate per acre goal is 5 gal/ac for a final mix that is half Envita and half fertilizer. We will need to measure out quantities equivalent to 2.5 gal/ac of Envita/water mix and 2.5 gal/ac of 10-34-0 starter. In our example we are using a one-quart jar. In order to get the measurement to the equivalent of a one-quart jar we need to know that five gallons is equal to 640 fl. oz. and one quart is equal to 32 fl. oz. So, there are 20 quarts in five gallons: $640/32=20$. A one-quart jar test is equal to 1/20th of the intended application rate of 5 gal/ac. ($1/20=0.05$)
 - All of our rates need to be multiplied by 0.05 to calculate an accurate ratio:
 - $2.5 \text{ gal/ac of water} = 320 \text{ fl. oz.} \times 0.05 = 16 \text{ fl. oz.}$
 - $3.2 \text{ oz/ac Envita} \times 0.05 = 0.16 \text{ fl. oz.}$
 - $2.5 \text{ gal/ac of 10-34-0 starter} = 320 \text{ fl. oz.} \times 0.05 = 16 \text{ fl. oz.}$
1. Measure out 16 fl. oz. of water into a measuring cup or bowl.
 2. Add 0.16 fl. oz. (about 5 ml) of Envita to the water and stir or shake thoroughly into the water. This represents the Envita water premix.
 3. Measure 16 fl. oz. of 10-34-0 starter and add it to the quart jar.
 4. Add the Envita/water mixture into the jar on top of the 10-34-0 starter.
 5. Cap the jar and thoroughly shake/stir the mix together. Set the jar down and observe. Watch for any thickening and separating in the mixture – this would indicate that the mixture is not compatible.
 6. Uncap the jar and stir the mixture with a clean whisk or other utensil. Pull the utensil out and observe if any material has stuck to it. If it comes out clean, then the jar test is successful. These products are likely to be compatible in the tank.

Summary:

When applying Envita it is recommended that a jar test be performed to determine if the fertilizer being mixed with the Envita is compatible. If a successful jar test demonstrates that Envita and the fertilizer are compatible, then it is highly likely that mixing a full batch will result in a good mix that will pass through the planter without problem. Please keep in mind that a jar test is a strong indicator, not a guarantee, that there will be no issue planting the tested mix.



Result of a bad jar test. These products are incompatible.
Photo by Legend Seeds (Matt Caron)



Result of a good jar test. These products are compatible.
Photo by Legend Seeds (Matt Caron)

Resources

<https://www.azotic-na.com/use-instructions/>
<https://www.azotic-na.com/tank-mix-partners/>

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