

Test #1

Materials:

- jar
- measuring cup
- water
- unflavored gelatin (in packets)

Methods:

1. Add ~ one-half cup of (warm or room-temperature) water to a jar.
2. Stir in one packet of unflavored gelatin.
3. Allow to stand undisturbed for +/- 15 minutes.
4. Observe.

Describe what (if anything) changed: _____

Compatible? [Could you apply this mixture with a sprayer?]

(Yes/No): _____

IF incompatible (No), physical or chemical? _____

Clue(s)? _____

Test #2

Materials:

jar + lid
measuring cup
water
vegetable oil (yellow/corn)
liquid dish soap (Dawn)

Methods:

Step 1. Fill a jar 1/2 full of water. Add oil until a thin but visible layer sits on top of the water. Put on jar lid and shake. Observe.

Describe what (if anything) changed: _____

Compatible? [Could you apply this mixture with a sprayer?]
(Yes/No): _____

Step 2. Add several drops of liquid soap. Put the lid back on, and shake. Observe right away, and again after a minute or two.

Describe what (if anything) changed: _____

Compatible? [Could you apply this mixture with a sprayer?]
(Yes/No): _____

IF incompatible (No), physical or chemical? _____

Clue(s)? _____

Test #3

Materials:

jar + lid
water
cornstarch
iodine solution

Methods:

Step 1. Put about a cup of water in a jar. Add a few teaspoons of soluble starch (cornstarch). Shake or stir to mix. Observe.

Did you see any sign of a physical or chemical change?

(Yes/No): _____

Compatible? [Could you spray this solution or mixture?]

(Yes/No): _____

Clue(s)? _____

Step 2. Add a few drops of Iodine (Betadine) solution. Shake or stir to mix. Observe again.

Describe what (if anything) changed: _____

Did you see any sign of a physical or chemical change?

(Yes/No): _____

Compatible? [Should you spray this solution or mixture?]

(Yes/No): _____

IF incompatible (No), physical or chemical? _____

Clue(s)? _____

Test #4

Materials:

jar + lid
measuring cup
tablespoon
water
baking powder / baking soda
vinegar

Methods:

Step 1. Put about 1 cup of water in a jar. Add a tablespoon of baking powder (or baking soda). Shake or stir to mix. Observe.

Compatible? [Could you apply this mixture with a sprayer?]
(Yes/No): _____

IF incompatible (No), physical or chemical? _____

Clue(s)? _____

Step 2. Add 1/4 cup of vinegar. Observe again.

Describe what (if anything) changed: _____

Did you see any sign of a physical or chemical change?
(Yes/No): _____

Compatible? [Should you apply this mixture with a sprayer?]
(Yes/No): _____

IF incompatible (No), physical or chemical? _____

Clue(s)? _____

Test #5

Materials:

clear (glass) jar
tablespoon
water
teabag
whole milk or cream
lemon juice

Methods:

Step 1. Make a strong cup of tea in the jar. Add ~ 1 TBSP of whole milk or cream. Stir to mix. Observe.

Compatible? [Could you apply this mixture with a sprayer?]

(Yes/No): _____

IF incompatible (No), physical or chemical? _____

Clue(s)? _____

Step 2. Add a few drops of lemon juice. [Note: lemon juice is a weak acid.] Stir to mix. Wait and watch for +/- five minutes.

Describe what (if anything) changed: _____

Compatible? [Could you apply this mixture with a sprayer?]

(Yes/No): _____

IF incompatible (No), physical or chemical? _____

Clue(s)? _____

Test #6

Materials:

three jars (labeled 1-2-3)
measuring cup
tablespoon
distilled water
washing soda (*Sodium Carbonate*)
Epsom salts (*Magnesium Sulfate*)

Methods:

Step 1. Add ~ 1 cup of distilled water to jars #1 and #2. Add 1 TBSP of washing soda to jar #1. Add 1 TBSP of Epsom salts to jar #2. Stir or shake to mix. Observe each solution / jar. Are they cloudy (suspensions) or clear (true solutions)?

Compatible? [Could you apply these mixtures with a sprayer?]
(Yes/No): _____

IF incompatible (No), physical or chemical? _____

Clue(s)? _____

Step 2. Next, pour/decant about half of each solution into the third jar. Again, observe.

Describe what (if anything) changed: _____

Compatible? [Could you apply this mixture with a sprayer?]
(Yes/No): _____

IF incompatible (No), physical or chemical? _____

Clue(s)? _____

Test #6: NOTES:

- Exact proportions are not critical...but if you use too much of either ingredient to start, all of the washing soda and Epsom salts will not dissolve, which may make the mixtures appear to be incompatible when, in fact, they are not. If the solutions are too weak, the change/precipitate will not be easy to see.
- Washing soda may form a precipitate in “hard” water...so use distilled water or test yours in advance to be sure it is “soft”.
- Washing soda is caustic. Wipe up any spills immediately. Do not get into eyes or mouth. Be certain you have clean water available in case of an accident.

Reaction:

(sodium carbonate + magnesium sulfate → sodium sulfate + magnesium carbonate ↓)