

Technical Update
From DuPont Crop Protection
DuPont™ Kocide® 3000 fungicide/bactericide

Fertilizer Compatibility Jar Test

Compatibility of DuPont™ Kocide® 3000 fungicide/bactericide with liquid fertilizer depends on the chemical properties of the fertilizer plus all other ingredients (micro-nutrients, etc.) and the temperature of the mixture. We have observed significant differences in compatibility between different liquid fertilizers and even different production lots of the same proprietary fertilizer. Therefore, it is essential to perform a jar test with each different mixture. It is best to perform this test on site because the ingredients must be at the same temperature at which they will be mixed and applied. Because liquid fertilizers often have little or no free water to disperse a dry formulation, it is important to disperse Kocide® 3000 before adding it to the fertilizer. Kocide® 3000 should be dispersed in water at a rate of 10 pounds Kocide® 3000 in at least 3.5 to 4 gallons of water. It must be mixed until no lumps are remaining. As water temperature decreases, dispersing Kocide® 3000 becomes increasingly difficult. Use of the DuPont™ Kocide® mixer or a paint mixer in an electric drill helps obtain a uniform dispersion.

No other product, adjuvant or compatibility agent should be added to the water until the Kocide® 3000 is completely dispersed. If other products are added to the Kocide® 3000 slurry, the correct order is 1) Dispersible granules or powders, 2) Water-based suspension concentrates, 3) Water-soluble concentrates, 4) Oil-based suspension concentrates, 5) Emulsifiable concentrates, 6) Adjuvants, oils, surfactants.

This brochure describes how to do a compatibility jar test with items commonly available or that can be purchased at Wal-Mart, Kmart or a similar store. All you need is a ½ gallon calibrated measuring pitcher, a 1 gallon clear plastic or glass jar, a set of good quality

measuring spoons and a small plastic or paper cup. You must use actual measuring spoons. Refer to the tables on the next page to convert the rate per acre for mixture ingredients to the amount of each ingredient needed for the jar test. If DuPont™ Harmony® Extra or another DuPont sulfonylurea herbicide will be added to the mix, it is not necessary to include them in the jar test because of the extremely low use rate relative the total volume of the mixture.

MIXING ORDER

1. Look up the liquid fertilizer rate (gal/A) in Table 1.
2. Add the corresponding fluid ounces of liquid fertilizer to the jar. The fertilizer must be at the same temperature that it will be in the field.
3. Look up the rate (fluid ounce per acre) of other liquid ingredients (typically micro-nutrients) in Table 2. The liquid ingredients must be at the same temperature that they will be in the field.
4. Add the corresponding amount (tablespoons [TBS] and teaspoons [tsp]) of other ingredients to the jar and shake well.
5. Add 1 TBS + 1 tsp of water to a small paper or plastic cup. The water should be from the same source that will be used in the field and at the same temperature.
6. Add 1½ level tsp of Kocide® 3000 to the cup and mix thoroughly, using one of the measuring spoons.
7. Add the Kocide® 3000 slurry to the jar and shake well.
8. Observe at least 30 minutes, unless a color change or precipitate forms more quickly.
9. If precipitate is formed, or if the liquid becomes very thick in the jar, the mixture is not compatible.
10. If the liquid remains blue and there is no precipitate, then the mixture is compatible.

Note: The same mixing order should be used in the sprayer as in the jar test.



Table 1. Liquid fertilizer

gal/A	fl oz in jar test	gal/A	fl oz in jar test	gal/A	fl oz in jar test
10	23	19	44	28	65
11	26	20	47	29	68
12	28	21	49	30	70
13	30	22	51	31	72
14	33	23	54	32	75
15	35	24	56	33	77
16	37	25	58	34	79
17	40	26	61	35	82
18	42	27	63		

DuPont Kocide® 3000
(0.75 lb/A)
Add 1½ tsp Kocide® 3000
to 1 TBS + 1 tsp water
To calculate other
dry ingredients,
divide the rate/A in lbs
or oz/A by 55

Table 2. Other Liquid ingredients

fl oz/A	TBS/tsp in jar test	fl oz/A	TBS/tsp in jar test	fl oz/A	TBS/tsp in jar test	fl oz/A	TBS/tsp in jar test
8	1 tsp	39	1 TBS + 1 ¼ tsp	70	2 TBS + 1 ¾ tsp	101	3 TBS + 2 tsp
9	1 tsp	40	1 TBS + 1 ½ tsp	71	2 TBS + 1 ¾ tsp	102	3 TBS + 2 ¼ tsp
10	1 tsp	41	1 TBS + 1 ½ tsp	72	2 TBS + 2 tsp	103	3 TBS + 2 ¼ tsp
11	1 ¼ tsp	42	1 TBS + 1 ½ tsp	73	2 TBS + 2 tsp	104	3 TBS + 2 ½ tsp
12	1 ¼ tsp	43	1 TBS + 1 ¾ tsp	74	2 TBS + 2 tsp	105	3 TBS + 2 ½ tsp
13	1 ½ tsp	44	1 TBS + 1 ¾ tsp	75	2 TBS + 2 ¼ tsp	106	3 TBS + 2 ½ tsp
14	1 ½ tsp	45	1 TBS + 2 tsp	76	2 TBS + 2 ¼ tsp	107	3 TBS + 2 ¾ tsp
15	1 ¾ tsp	46	1 TBS + 2 tsp	77	2 TBS + 2 ½ tsp	108	3 TBS + 2 ¾ tsp
16	1 ¾ tsp	47	1 TBS + 2 ¼ tsp	78	2 TBS + 2 ½ tsp	109	4 TBS
17	1 ¾ tsp	48	1 TBS + 2 ¼ tsp	79	2 TBS + 2 ¾ tsp	110	4 TBS
18	2 tsp	49	1 TBS + 2 ¼ tsp	80	2 TBS + 2 ¾ tsp	111	4 TBS + ¼ tsp
19	2 tsp	50	1 TBS + 2 ½ tsp	81	2 TBS + 2 ¾ tsp	112	4 TBS + ¼ tsp
20	2 ¼ tsp	51	1 TBS + 2 ½ tsp	82	3 TBS	113	4 TBS + ¼ tsp
21	2 ¼ tsp	52	1 TBS + 2 ¾ tsp	83	3 TBS	114	4 TBS + ½ tsp
22	2 ½ tsp	53	1 TBS + 2 ¾ tsp	84	3 TBS + ¼ tsp	115	4 TBS + ½ tsp
23	2 ½ tsp	54	2 TBS	85	3 TBS + ¼ tsp	116	4 TBS + ¾ tsp
24	2 ¾ tsp	55	2 TBS	86	3 TBS + ½ tsp	117	4 TBS + ¾ tsp
25	2 ¾ tsp	56	2 TBS + ¼ tsp	87	3 TBS + ½ tsp	118	4 TBS + 1 tsp
26	2 ¾ tsp	57	2 TBS + ¼ tsp	88	3 TBS + ¾ tsp	119	4 TBS + 1 tsp
27	1 TBS	58	2 TBS + ¼ tsp	89	3 TBS + ¾ tsp	120	4 TBS + 1 ¼ tsp
28	1 TBS	59	2 TBS + ½ tsp	90	3 TBS + ¾ tsp	121	4 TBS + 1 ¼ tsp
29	1 TBS + ¼ tsp	60	2 TBS + ½ tsp	91	3 TBS + 1 tsp	122	4 TBS + 1 ¼ tsp
30	1 TBS + ¼ tsp	61	2 TBS + ¾ tsp	92	3 TBS + 1 tsp	123	4 TBS + 1 ½ tsp
31	1 TBS + ½ tsp	62	2 TBS + ¾ tsp	93	3 TBS + 1 ¼ tsp	124	4 TBS + 1 ½ tsp
32	1 TBS + ½ tsp	63	2 TBS + 1 tsp	94	3 TBS + 1 ¼ tsp	125	4 TBS + 1 ¾ tsp
33	1 TBS + ½ tsp	64	2 TBS + 1 tsp	95	3 TBS + 1 ½ tsp	126	4 TBS + 1 ¾ tsp
34	1 TBS + ¾ tsp	65	2 TBS + 1 tsp	96	3 TBS + 1 ½ tsp	127	4 TBS + 2 tsp
35	1 TBS + ¾ tsp	66	2 TBS + 1 ¼ tsp	97	3 TBS + 1 ½ tsp	128	4 TBS + 2 tsp
36	1 TBS + 1 tsp	67	2 TBS + 1 ¼ tsp	98	3 TBS + 1 ¾ tsp		
37	1 TBS + 1 tsp	68	2 TBS + 1 ½ tsp	99	3 TBS + 1 ¾ tsp		
38	1 TBS + 1 ¼ tsp	69	2 TBS + 1 ½ tsp	100	3 TBS + 2 tsp		



Items required for jar test



Add the amount of fertilizer from Table 1



Add the amount of other liquid ingredients from Table 2



Shake or stir



Add 1 TBS + 1 tsp of water to a small cup



Add 1½ tsp of DuPont™ Kocide® 3000 to the water



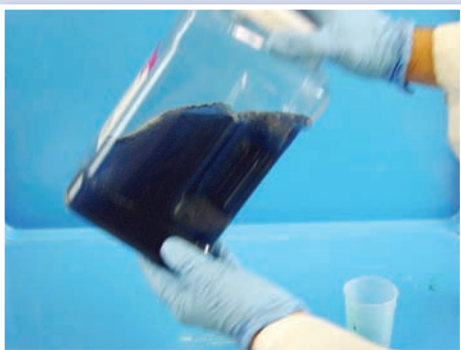
Mix this slurry until there are no lumps



Add the Kocide® 3000 slurry to the jar



Rinse the cup and pour the contents back into the jar



Shake or stir the mixture. Wait 30 minutes or until a change in color or precipitate occurs.



The jar on the left is incompatible. The jar on the right is compatible.



Note the precipitate in the jar on the left. These jars are different lots of the same 27-0-0-6 fertilizer.

FOR MORE INFORMATION

Contact your local DuPont crop protection retailer or representative to learn more about the fertilizer compatibility jar test for Kocide® 3000 fungicide.

kocide.dupont.com

This reference guide is not intended as a substitute for the product label for the product(s) referenced herein. Product labels for the above product(s) contain important precautions, directions for use and product warranty and liability limitations that must be read before using the product. Applicators must be in possession of the product label(s) at the time of application. Always read and follow all label directions and precautions for use when using any pesticide alone or in tank mix combinations.

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