

# Spray Material Half-Life Chart 2007

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Adjusting the pH of the spray solution can reduce spray material decomposition and make the spray more effective. The following chart shows the Spray Material Half-Life or the time it takes for half the amount of chemical to be decomposed (made inactive at various pH levels).

Spray Material Product	Buffering	Optimum pH	Half-Life at pH indicated (50% decomposition)					
			9.0 Basic	8.0 Basic	7.0 Neutral	6.0 Acidic	5.0 Acidic	4.5 Acidic
2,4-D Amine		6.0	Stable at pH 4.5 - 7.0					
Accel®		6.0	Strongly recommend pH 5.5 - 6.5					
Achieve®		7.0	>1000 days		114 days		63 days	
Acramite® Updated 6-04	X	6.0	10 min.		1 hr.	12 hrs.		20 hrs.
Acrobat®		7.0	Stable over wide range of pH					
Actara™ Updated 8-04		7.0	Susceptible to alkaline hydrolysis in pH >9.0					
Actellic®		7.0		12 days	35 days		7 days	
Admire®		6.0	355 days	Fully stable at a pH of 5 and 7				
Agri-Mek®		7.0	Stable over wide range of pH					
Aliette®		6.0	Stable in pH 4.0 - 8.0					
Alverde® Added 8-06		7.0	Stable over wide range of pH above 4.0					
Amber®		7.0	Stable from 7.0 to 9.0				31 days	
Ambush®		7.0	Stable at pH 6.0 - 8.0					
Ammo®	X	4.0	35 hrs.		More stable in acidic solutions			
Apollo® Updated 1-03	X	6.0	9 hrs.		34 hrs.		248 hrs.	
Asana® Updated 6-04		6.5	Stable over a pH 5.0 - 9.0 range					
Assail™		7.0	Unstable in water pH below 4.0 and above 9.0					
Atrazine		7.0	Decomposes slowly in base solution					
Auxigro®	X	6.0	Strongly recommend pH 5.5 - 6.5					
Avaunt®			Stable over wide range of pH					
Avenge®	X	5.0	Decomposes in strong base condition					
Banvel®	X	5.5	Stable at pH 5.0 - 6.0					
Basagran®		7.0	Stable over wide range of pH					
Bayleton®		7.0	Stable over wide range of pH					
Baythroid® Added 7-06			Stable over wide range of pH					
Beacon®		7.0	>900 days				6 days	
Betamix®		7.0	10 min.		17 hrs		60 days	
Broadrange™		6.5	Avoid pH below 4.0					
Bravo®		7.0	Stable over wide range of pH					
Buctril®	X	5.0	Hydrolysis above pH 7.0					
Cabrio™ EG		7.0	30 days					
Calypso® Updated 1-05		7.0	Stable over wide range of pH 5.0 to 9.0					
Canvas®		7.0	Do NOT lower pH of water					
Captan®	X	5.0		10 min.	8 hrs.		32 hrs.	
CaptEvat® Added 8-04	X	5.0		10 min.	8 hrs.		32 hrs.	
Capture® Added 6-04		6.0	Stable in pH 4.5 - 7.5					
Carzol®	X	5.0	2 hrs.		23 hrs.		4 days	
Classic®	X	5.0	Stable in pH 5.0 water					
Copper Products		>7.0	Do Not Use In water pH below 7.0					
Confirm®		7.0	Stable over wide range of pH					
Curzate® DF Updated 3-03		6.5		8 hrs.	Stable at pH 5.5 - 6.5			
Dacthal®		7.0	Hydrolyzed in strong acid and alkaline					
Des-i-cate®	X	5.0	Stable at pH 4.0 - 5.0					
Di-syston®		7.0	Stable over wide range of pH					
Diazinon		7.0	29 days	3 wks.	10wks.		14 days	8 days
Dibrom®	X	5.0	Hydrolyzed in 48 hrs. in pH > 7					
Digon® Dimethoate	X	5.0	48 mins.			12 hrs.		20 hrs.



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Dipel®		6.0	Unstable in pH > 8					
Dithane®	X	5.5	4 hrs.		17 hrs.		20 days	
Diquat®		6.0	Stable in neutral or acid solutions					
Distinct®		7.0	Stable over wide range of pH					
Dursban®	X	5.0		1.5 days	35 days		63 days	
Dylox®	X	5.0		63 min.	6.5 hrs.	3.7 days		
Echo® / Bravo®		7.0	Stable over wide range of pH					
Endura® 7-04		6.8	Stable over wide range of pH					
Ethrel® updated 2-06	X	7.0	Hydrolyzed under alkaline conditions					
Everest®		7.0	Stable over wide range of pH					
Express®		7.0	Do NOT lower pH of water					
FanFare® Added 8-27								
Fujimite®								
Funginex®		6.5	Neutralized in slightly alkaline water					
Furadan®	X	5.0	78 hrs.			8 days		
Fusilade®		7.0	17 days		21 wks.			65 wks.
Gallery®		7.0	Stable over wide range of pH					
Glean®		7.0	Do NOT lower pH of water					
Genesis®		7.0	Stable over wide range of pH					
Goal®		7.0	Stable in neutral pH					
Gramoxone® Extra		6.5	Not stable in pH > 7.0					
Gramoxone® MAX		6.5	Not stable in pH > 7.0					
Guthion®	X	5.5	12 hrs.		10 days		17 days	
Harmony®		7.0	Do NOT lower pH of water					
Harmony® Extra		7.0	Do NOT lower pH of water					
Harmony® GT		7.0	Do NOT lower pH of water					
Headline®		7.0	30 days					
Imidan® Updated 12-03	X	5.0		33 min.	1 hrs.	36 hrs.	7 days	13 days
Intrepid®		7.0	Stable in pH from 6.0 to 11.0					
Kelthane®	X	5.5	1 hr.		5 days		20days	
Kerb®		6.5	Stable in pH 5.5 - 7.5					
Lannate®		6.5	Stable in slightly acidic water					
Laredo®		7.0	Unaffected by Alkaline Hydrolysis					
Larvin®	X	5.0	Stable in pH 4.0 - 7.5					
Lasso®	X	5.5	Affected by alkaline water					
Lexone®		7.0	Unaffected by Alkaline Hydrolysis					
Lindane		7.0	11 days		27 wks.			
Lorsban®		7.0		1.5 days	35 days		63 days	
Malathion	X	5.0	5 hrs.	19 hrs.	3 days	8 days		
Maneb® Updated 5-03	X	5.5	4 hrs.		17 hrs.		20 days	
Manzate®	X	5.5	4 hrs.		17 hrs.		20 days	
Maverick® Updated 1-04		8.5	SU Herbicide Chemisty Performs Better In A Higher pH Solution					
Mitac®	X	5.0	1.5 hrs.		15 hrs.		35 hrs.	
MetaSystex R ®	X	6.0	Unstable in alkaliies					
Monitor®	X	5.5	Decomposes rapidly at pH >7					
Morestan®	X	4.5	4 hrs.		80 hrs			10 days
Nemacur®		7.0	8 days		700 days			40 days
Oberon® Added 4-06		7.0	Optimum pH is 6.0-8.0					
Oftanol®		7.0	90 days		525 days			325 days



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Omega®									
Omite® 30W & CR		7.0	5 days						
Orthene®		7.0	16 days		46 days		40 days		
Parathion		7.0		25 hrs.	120 days				
Peak®		7.0	672 days		423 days		10 days		
Permit®/Sanda®		7.0	Stable over wide range of pH						
Pencozeb®	X	5.5	4 hrs.		17 hrs.		20 days		
Pendimethalin		7.0	Stable over wide range of pH						
Pinnacle®		6.0	Rapid hydrolysis at pH 9						
Platinum® Added 8-04		7.0	Susceptible to alkaline hydrolysis in pH >9.0						
Poast®		7.0	Stable in pH 4.0 - 10.0						
Pounce®		6.0	pH 5.7 - 7.7 is optimum						
Prestine® 7-04		6.8	Stable in pH 6.7 - 7.5						
Princep®		6.0	24 days				96 days	120 days	
Promalin®		6.0	Unstable in pH >8						
Provado®		7.0	Stable over wide range of pH						
Prowl®		7.0	Stable over wide range of pH						
Proaxis® Added 8-04									
Pyramite®		7.0	Stable over wide range of pH						
Pyrethrum Added 6-04		6.0	pH 6.5 - 7.5 is optimum						
Rave®		7.0	Stable from 7.0 to 9.0					31 days	
Reglone®		6.0	Stable in neutral or acid solutions						
Ridomil Gold® MZ	X	5.0	Most stable at 5.0 Less stable at 7.0 to 9.0						
Rimon® Added 8-27									
Ronilan® 7-04		6.8	Stable in pH 6.7 - 7.5						
Roundup®	X	5.5				pH 5.0 - 6.0 optimum			
Rovral®		7.0	Rapid hydrolysis at pH >8						
Rubigan®		7.0	Stable over wide range of pH						
Rynaxpyr™ Added 4-06		7.0	10 days	Stable over range 4.0 to 7.0					
Savey®		7.0	Stable over wide range of pH						
Sencor®		6.5	Stable in pH 5.0 - 9.0						
Sevin®		7.0	24 hrs	2.5 days	24 days	100 days			
Shadeout®		7.0	Stable in neutral pH						
Spintor®/Success®		7.0	Stable in pH from 6.0 to 11.0					12 hrs.	
Surflan®		7.0	Stable over wide range of pH						
Tanos™ Added 12-03	X	6.5	Rapid hydrolysis at pH >7						
Terrachlor®	X	5.5	Rapid hydrolysis at pH >7						
Thiodan®		6.0	Some alkaline hydrolysis						
Tilt®		7.0	Stable over wide range of pH						
Topsin® M Update 8-06		7.0	Stable in pH 6.7 - 7.5						
Treflan®/Trifuralin		7.0	Stable over wide range of pH						
Trimec®		7.0	Avoid pH 5.0 or less						
Triumph®	X	5.5	20 hrs				8.3 days	Avoid pH 5.0 or less	
Turcam®		6.0	45 mins.		3 days		48 days		
Warrior® Updated 8-04		6.5	Stable in pH 5.5 - 7.0						
Vendex®		7.0	Not effected by pH						
Vydate®	X	5.0	30 hrs.				Stable at 4.7 pH		
Zeal®									

\*\*® indicates that the product name listed is the registered trademark of the manufacturer.



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\*\*For most pesticides, the optimum pH is in the range of 5.0 - 6.5 (slightly acidic).

\*\*An 'X' in the buffering column denotes that the use of a buffering agent such as TRI-FOL(r) should produce significant agronomic gains.

\*\*Check with the respective manufacturer's label for recommended pH levels. Many factors determine the efficacy of sprays, therefore, it is not possible to guarantee any combination or results accordingly. The following factors are involved with chemical performance: pH, temperature, solubility, concentrations, type of agitation, humidity, mixture time in tank and time of application. The above pH half-life information has been obtained from various manufacturers, universities, and state agricultural sources. Wilbur-Ellis has not tested the above stability levels nor verified the pH half-life ranges, but rather offers the above information as a guideline to address the issue of pH importance to more effective spray application.

\*\*Data Sources; University of Massachusetts, Ohio State University, North Carolina Ag extension, and product labeling.

Data Pending