

List of short PHI materials for Botrytis, powdery mildew, and downy mildew of grape
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Botrytis (Good to Excellent)				
Fungicide	FRAC	REI	PHI	Comments
Elevate	17	12	0	
Luna Tranquility	7+9	12	7	(No longer on the market)
Meteor/Rovral	2	48	7	
Scala	9	12	7	
Switch 62.5WG	9+12	12	7	It may suppress sour rot, and is a good material for ripe rot
Vanguard	9	12	7	
Botrytis (Fair to poor: may not work as a solo application, but would be a nice mixing partner)				
Fungicide	FRAC	REI	PHI	Comments
Topsin-M	1	2	7	Probably no longer effective against Botrytis in many vineyards
Ph-D, Oso	19	4	0	Relatively older material, introduced recently to the US. Limited information is available on their efficacy. It is known to have resistance issues, so, please mix it with another Botrytis material.
Fracture	NC	4	1	Not many information is available.
Champ (and other fixed copper materials, please see Downy mildew section for some examples.)	M1	48	0	Has efficacy on Downy and powdery mildew. Discuss with your winemaker about the use of copper late in the season.
Captan, Captec 4L/ 50 WP	M4	48	0	It also has efficacy on Downy mildew, do not mix with oil. Discuss with your winemaker about the use of captan late in the season.
Powdery mildew				
Fungicide	FRAC	REI	PHI	Comments
Armcarb, Kaligreen, Milstop, Nutrol, etc.	M	4	0	It is very good for stopping ongoing powdery mildew, but this type of material (potassium salt) tends to be expensive.
Captan, Captec 4L/ 50 WP	M4	48	0	Has some efficacy on Botrytis and downy mildew. Discuss with your winemaker about the use of captan late in the season.
Champ (and other fixed copper materials, please see Downy mildew section for some examples.)	M1	48	0	Has some efficacy on Botrytis and downy mildew. Discuss with your winemaker about the use of copper late in the season.
Double Nickel	NC	4	0	Very limited information is available. Worked well when mixed with Oso in our trials. Oso + Double Nickel may suppress sour rot.

Powdery mildew				
Fungicide	FRAC	REI	PHI	
Ferbam	M3	24	0	Fair efficacy.
JMS Stylet Oil	M	4	0	Do not mix with captan or sulfur!
Microthiol D (sulfur)	M	24	0	Do not mix with oil!
Oxidate 5.0	M	1	0	Very limited information is available. It works better with sour rot (but needs to be mixed with an insecticide to control fruit flies)
Procure	3	12	7	The only group 3 material with 7-day PHI at this point.
Sulfuriox	M2	24	0	Do not mix with oil
Torino	U6	4	3	Different mode of action group. Limited to two applications per year, known resistance issue.
Downy mildew				
Fungicide	FRAC	REI	PHI	
Phostrol, ProPhyt, Agri-Fos, etc.	P07	4	0	Good DM material with a kickback activity. Do not mix with copper!!
Champ (fixed copper)	M1	48	0	Has some efficacy on Botrytis and powdery mildew. Discuss with your winemaker about the use of copper late in the season.
Cueva (fixed copper)	M1	4	0	Has some (=poor to fair) efficacy on Botrytis and powdery mildew. Discuss with your winemaker about the use of copper late in the season.
Cueprofix (fixed copper)	M1	48	0	Has some efficacy on Botrytis and powdery mildew. Discuss with your winemaker about the use of copper late in the season.
There are many other copper materials, please refer to the label for REI and PHI. If you are concerned about copper accumulation in the environment, copper soap-type materials (e.g., Cueva, etc.) tend to have a lower concentration of Cu.				
Captan, Captec 4L/ 50 WP	M4	48	0	Has some efficacy on Botrytis and powdery mildew. Discuss with your winemaker about the use of captan late in the season. Different products may have longer REI. Check the label!
Lifeguard	44	4	0	It has a label for powdery and downy, but it seems to work better with downy mildew. You need to spray preventatively.
Oxiphos	P07+ M	4	0	One of the components is a phos acid. If you wish to use Oxidate, I would recommend this one.