

Anthocyanin Removal & Rosé Color Adjustment

Objective:

This protocol covers two applications of decolorizing activated carbon: (1) full removal of pink/red anthocyanin pigment from white and rosé juice, and (2) partial color adjustment of rosé to a target hue. It is written for decolorizing carbons distributed by ATPGroup. Dosing is guided by absorbance at 520 nm (A520), the primary signal for red pigment, as measured on a nephelometer, following the manufacturer's instructions. The guideline tables provide only a starting bracket. A bench trial is necessary to determine the exact required dose.

1. Anthocyanin Removal from White / Rosé Juice

The goal is to remove the pink/red pigment to make it visually colorless while minimizing aroma stripping. Treat cold and early — pre- or mid-fermentation carbon treatment acts on anthocyanins more effectively than post-fermentation treatment, because the pigment is more available.

Starting dose by A520

A520	Starting carbon dose		Notes
< 0.05	0.5-1.25 lb/1000 gal	5–15 g/hL	Light tint; polish
0.05–0.15	1.25-3 lb/1000 gal	15–35 g/hL	Typical pressed-juice pinking
0.15–0.30	3-5 lb/1000 gal	35–60 g/hL	Noticeable pink/salmon
> 0.30	5-10 lb/1000 gal	60–120 g/hL	Heavy pigment

Target endpoint: $A_{520} \leq 0.02\text{--}0.03$, which reads as visually colorless in the finished juice.

2. Rosé Color Adjustment (Partial Removal)

The goal is to hit a target hue rather than completely remove color. To calculate the amount of carbon needed, set the target first. Measure starting A520, define the target A520 (e.g., a reference wine's value), compute % reduction = (start – target) / start × 100, then enter the table. Confirm the target visually on a bench sample before scaling — a number on the meter is not the same as the hue in glass.

Starting dose by desired reduction

Desired A520 reduction	Starting carbon dose		Typical use
Small (~20–30%)	0.5-2 lb/1000 gal	5–25 g/hL	Slight tint pullback
Moderate (~40–60%)	2-4.5 lb/1000 gal	25–55 g/hL	Shift deep rosé → pale
Large (~70%+)	4.5-8 lb/1000 gal	55–90 g/hL	Heavy correction

3. Bench Trial Instructions

The tables above give a starting bracket, not a final dose. If the bench trial does not yield the desired outcome, conduct a retrial by adjusting the dose based on the results of the previous trial.

1. Prepare 5-6 samples of 500 mL each. Note: pH and SO₂ levels can affect color. Adjust the juice to its anticipated final level before starting the trial.
2. Run the series separately for each carbon being trialed, as their capacities differ, so the dose will not transfer between them. Carbon can be added directly to the juice as a powder or pre-dissolved in water for easier mixing.
3. Dose the samples across the recommended bracket: 0 (control), 25%, 50%, 75%, and 100% of the top value for your scenario from the table above.
4. Mix carbon into the wine sample thoroughly and keep in suspension for 30–60 minutes.
5. Optional – allow the carbon to settle overnight before filtering.
6. Filter fully — coarse pad, then 0.45 μm — to remove all carbon before reading.
7. Read A520 of the filtered samples.
8. Tabulate dose vs. A520 and % reduction. Pick the lowest dose that hits your endpoint.



Activated Carbon Fining Protocol

Bench-trial worksheet

Lot / tank: _____ Date: _____ Starting A520: _____ Target A520: _____

Sample	Carbon	Dose	Contact (min)	Temp (°F)	A520 after	% reduction / notes
#1		0 (control)				
#2						
#3						
#4						
#5						

4. Tips and Recommendations

- Use the decolorizing carbon for color removal. Deodorizing carbon will not be as effective.
- Clarify first: centrifuge or filter samples to 0.45 μm , as haze can inflate readings at all wavelengths.
- A520 is the target signal for anthocyanin (red/pink) color. Also record A420 (yellow) and A620 (blue) if you want a full color-intensity context. For whites and rosés, it may be helpful to add the A420 and A520 values together before reading the suggested dosage table.
- Anthocyanin color shifts with pH and free SO_2 . Always measure at the sample's actual finished pH and SO_2 and remeasure post-treatment under the same conditions.
- Carbon is nonselective: it strips aroma and desirable phenolics alongside color. Dose the minimum that hits your endpoint. The goal is to use as much carbon as necessary while using as little as possible.
- Re-measure free SO_2 after treatment — carbon can lower it; adjust as needed.
- Rack and filter thoroughly; residual carbon fines cause downstream problems.
- TTB limits decolorizing carbon to 25 lb per 1,000 gal ($\approx 300 \text{ g/hL}$). All doses in this protocol fall within that limit; if a bench trial indicates a higher value, split into multiple treatments rather than exceeding the cap, and confirm the current rule before scaling up.

Bench trial results govern the final dose. This protocol is a starting framework, not a substitute for lot-by-lot testing.

For more information or for assistance with your specific requirements, please contact your ATPGroup Enology Products Specialist.