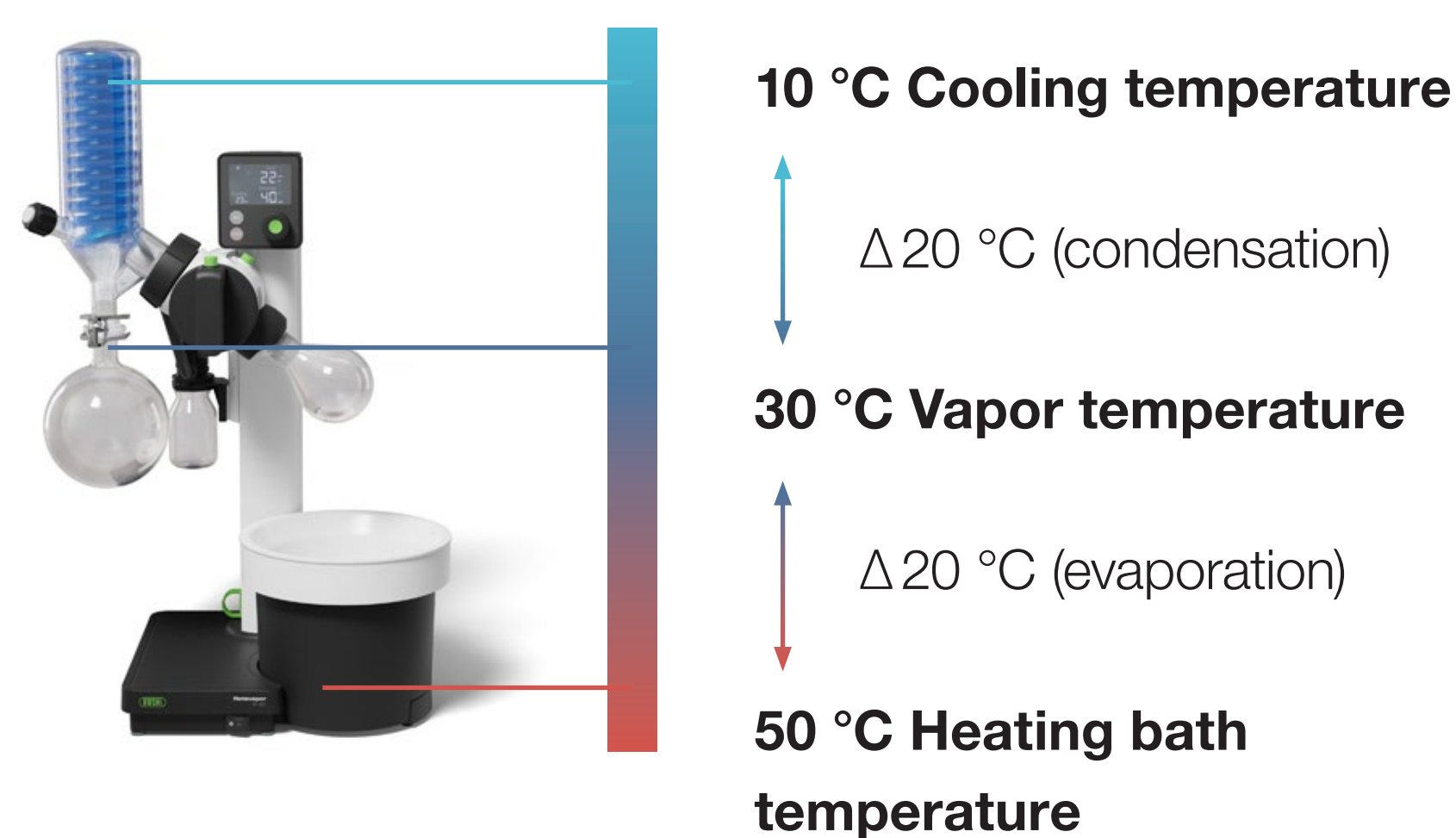


Time for Science: Rotavapor® R-80

High efficiency, small footprint

Respect the Delta 20 rule

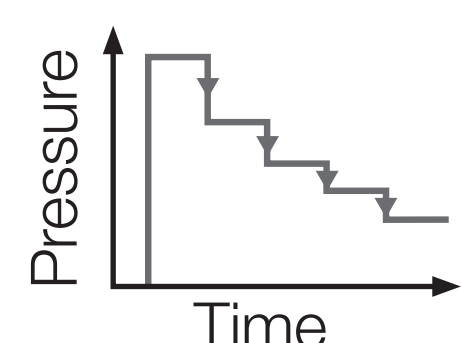
The rule says that for efficient evaporation, the temperature difference between heating bath and vapor, as well as vapor and cooling, is 20 °C.



If the pressure is too low, the solvent's boiling point may approach room temperature, causing re-evaporation in the receiving flask. Increasing the temperature difference boosts the evaporation rate but also raises energy consumption.

Optimize the pressure

The vacuum lowers the solvent's boiling point for distillation at reduced temperatures, allowing gentle solvent removal from mixtures without harming heat-sensitive materials.



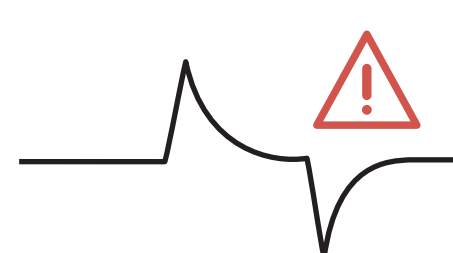
Begin slowly

Gently reduce the pressure to the desired set value to avoid bumping or foaming.



Choose working pressure wisely

Use a solvent table to look up the recommended values for the respective solvent.



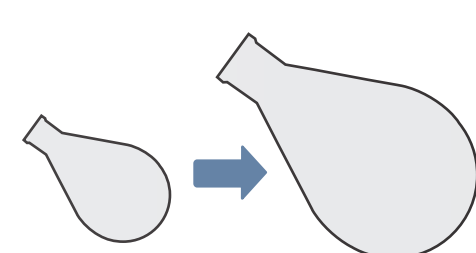
Pressure fluctuation

Keep the pressure constant

Sudden pressure changes can stop the distillation or cause bumping. Using an interface or a speed-controlled pump reduces such occurrences.

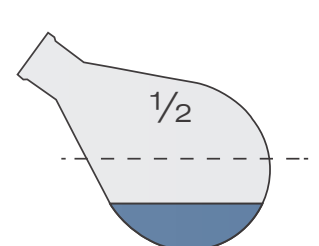
Use larger flasks

A larger flask means a larger surface area which positively influences the evaporation performance. Furthermore, larger flasks decrease the extent of bumping, preventing foam from splashing far to the other side.



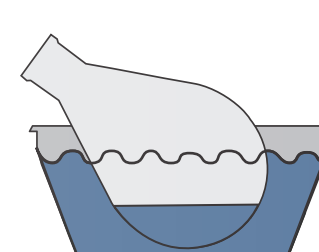
Up to 50 % performance increase

Doubling the evaporating flask volume can increase the performance by up to 50 %.



Keep fill level below 1/2

For handling reasons, the level of solvent should be kept below 1/2 of the evaporating flask.



Immerse the flask deeply

The solvent level inside the evaporating flask should be lower than the water level in the heating bath.

Tip: Save time with beaker flasks with larger openings; they simplify product removal and cleaning.

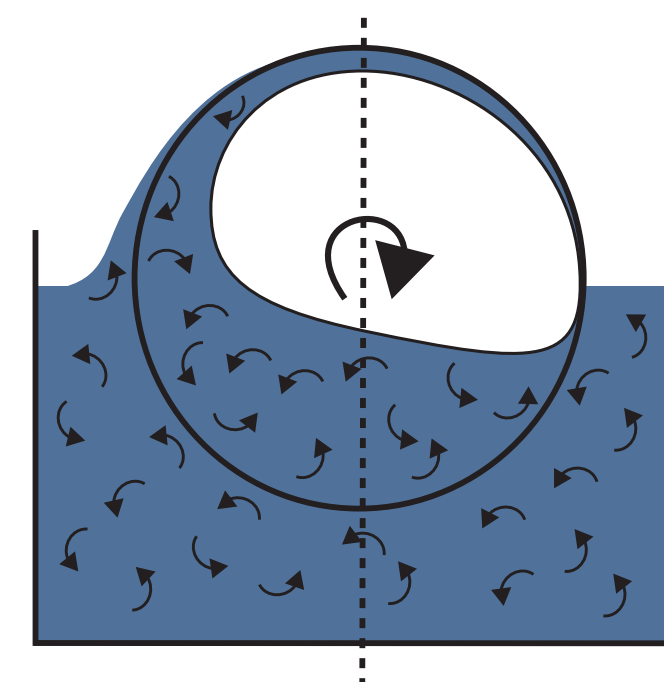
Increase rotation speed

Set rotation speed to the maximum

- For higher distillation rates
- To reduce bumping / foaming

Keep the rotation speed low if

- Working with high viscosity sample
- Drying powders

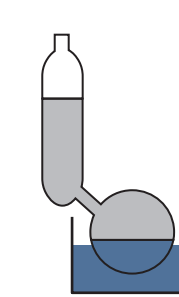


Rotation significantly enhances the surface area exposed for evaporation, while also creating turbulence within the bath and solvent. This turbulence improves the efficiency of heat transfer from the bath, facilitating a more effective evaporation process.

Tip: For efficient drying, especially with slurries, use the "drying mode" that enables rotation in alternating directions, enhancing the drying process.

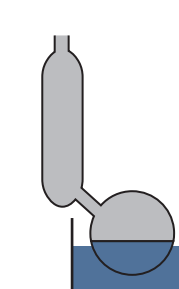
Load 75 % of condenser

Monitor the condensed solvent's height along the condenser coils to assess loading. Ensure a substantial gap exists between the condensed solvent and the vacuum connector.



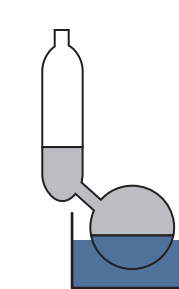
Optimal condenser loading

The distillation is in balance – the energy input for evaporation and the energy output through the condenser are in equilibrium.



Condenser is overloaded

- Increase the pressure (e.g., 300 to 340 mbar).
- Lower the cooling temperature.
- Respect the Delta 20 rule.

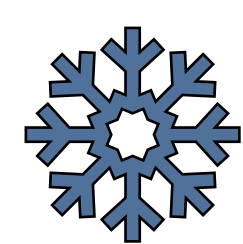


Condenser is underloaded

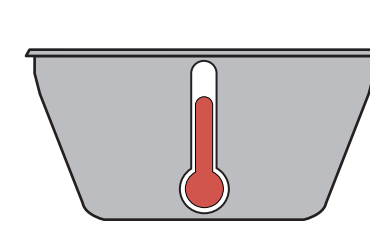
- Decrease the pressure (e.g., 340 to 300 mbar).
- Increase the heating bath temperature.
- Respect the Delta 20 rule.



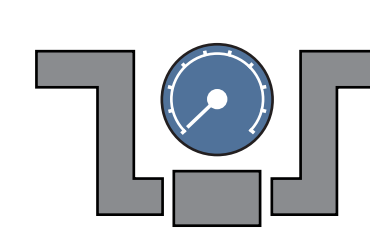
How to start



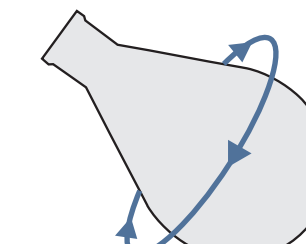
Start cooling



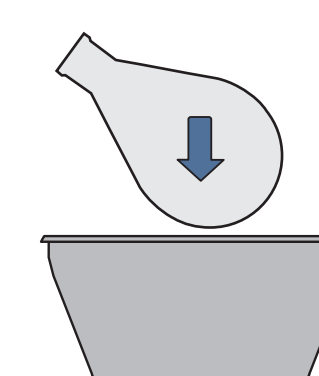
Start heating bath



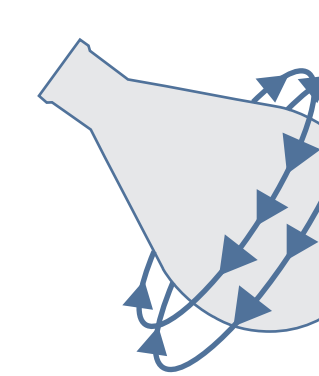
Set pressure



Slow rotation

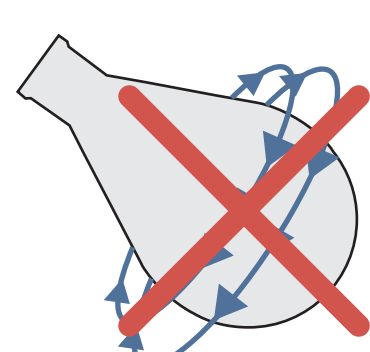


Lower evaporating flask

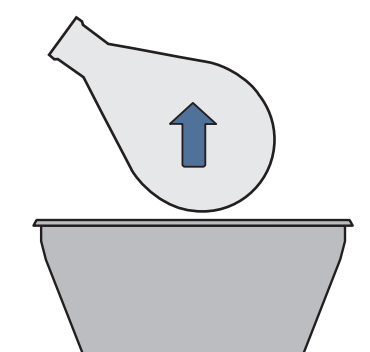


Fast rotation

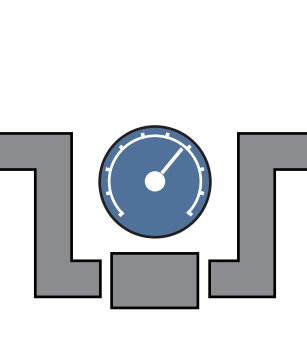
How to stop



Stop rotation



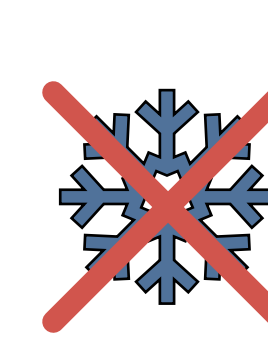
Lift evaporating flask



Aerate system



Stop heating bath



Stop cooling

Get more information about Rotavapor® R-80 on our website:

www.buchi.com

