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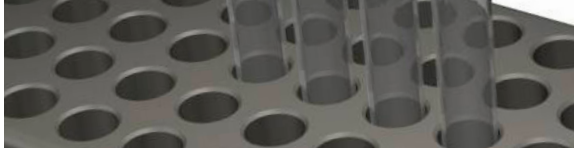
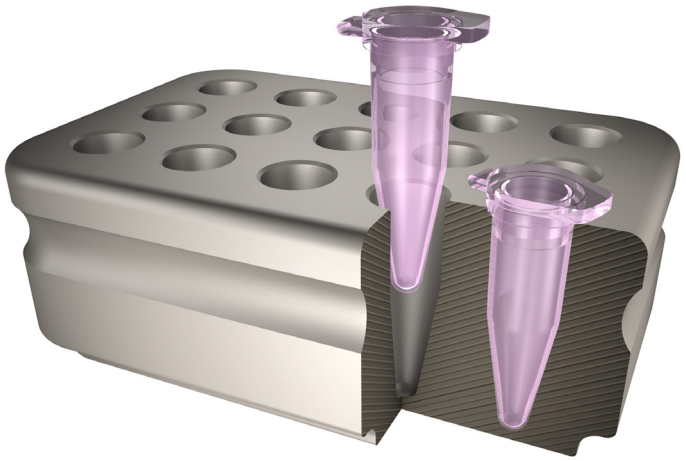


APPLICATION - SNAP FREEZING

Microcentrifuge Tube Snap Freezing

Conical 1.5ml microfuge tubes may easily be snap frozen with a CoolRack and dry ice. As a welcome alternative to dry ice/alcohol slurries, a CoolRack provides hands-free, indexed, upright freezing at rates equivalent to or faster than slurry.



Place a CoolRack directly on cake or pulverized dry ice. The CoolRack will reach equilibrium temperature of -70°C within 10 minutes. (fig. 1)

Tubes may either be snap frozen in dry CoolRack wells or with addition of a drop of alcohol to the well.

The PF series of CoolRacks feature a profile fit hole that matches the conical shape of a standard 1.5ml microfuge tube. The PF provides the fastest cooling for microfuge tubes by direct contact of the rack's highly thermo-conductive alloy with the entire tube.

The snap freeze rate for 1ml of water in a 1.5ml microfuge tube is shown in figure 2. The PF with a dry well (shown in green) freezes faster than slurry (yellow) and within one minute. For faster cooling adding one drop of alcohol to the well eliminates micro gaps at the tube interface and increases freezing rate beyond the dry well PF (shown in blue).

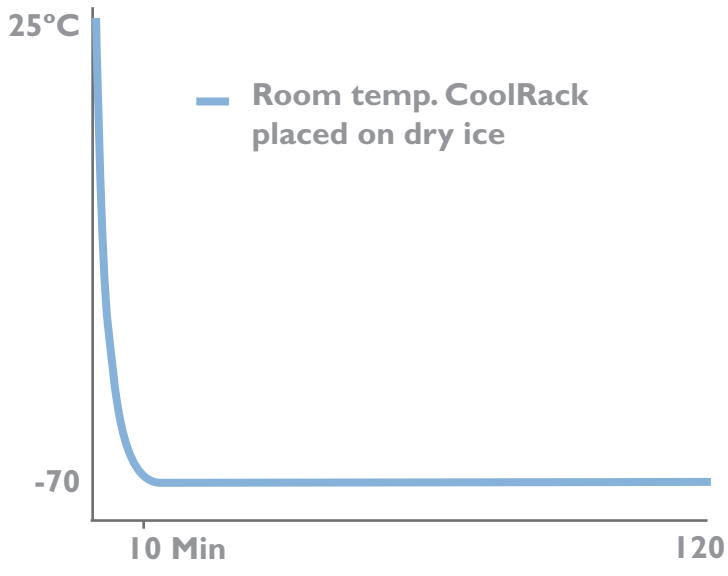


Figure 1

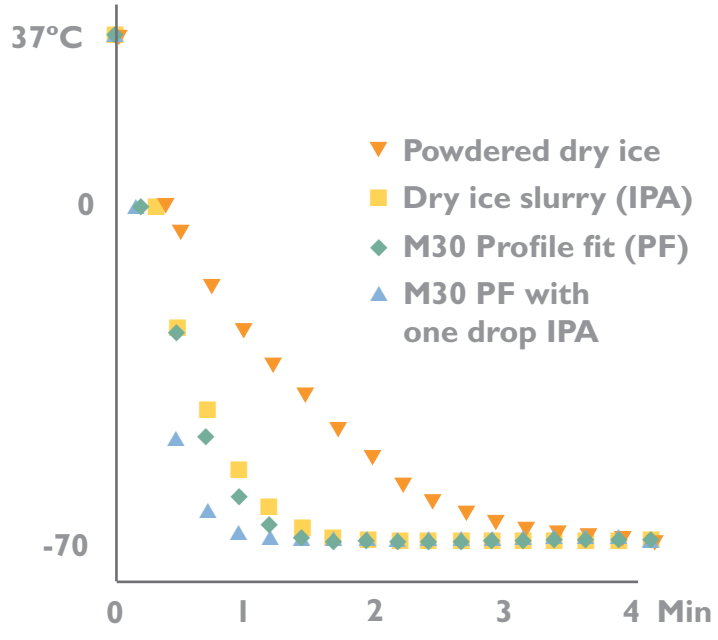


Figure 2

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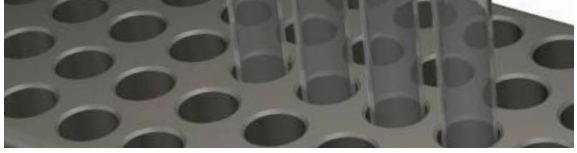


APPLICATION - SNAP FREEZING

Cryo-Tube Snap Freezing

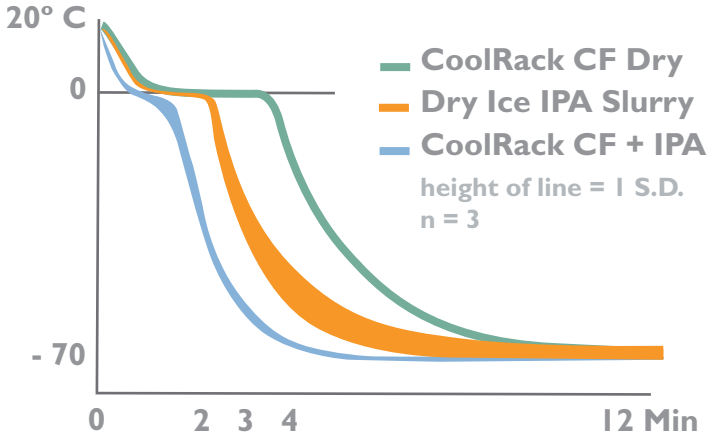
Cylindrical 12.5mm diameter tubes may easily be snap frozen with a CoolRack and dry ice. As a welcome alternative to dry ice/ alcohol slurries, a CoolRack provides stable, indexed, upright freezing at rates equivalent to or faster than slurry.

Place a CoolRack directly on cake or pulverized dry ice. The CoolRack will reach equilibrium temperature of -70°C within 10 minutes.

Tubes may either be snap frozen in dry CoolRack wells or with addition of a few drops of alcohol to the well for the fastest possible freezing rate.

The CF series of CoolRacks feature a cylindrical fit 12.5mm x 33mm deep well that matches standard 1.8ml, 2ml, and 4.5ml cryotubes.

The snap freeze rate for 1ml of water in a 2ml CF tube is shown at the right. The CF with a dry well (shown in green) freezes within 5 minutes. The CF well with 1ml alcohol added to the well to maximize direct wall contact (shown in blue) performs faster than dry ice/alcohol slurry (orange) and allows hands-free, upright, indexed freezing.



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