

# Fine-tuning oligonucleotide post-synthesis workflows

## Maximize recovery while protecting valuable oligos

### Reduce variability to enhance quality and yield

For years, oligonucleotide (oligo) use has been explored by medical, forensic, agriculture, biofuel, and even oceanography markets, just to name a few. Most recently, oligos are being aggressively leveraged in high-profile research and clinical applications such as detecting, characterizing, and developing therapeutics and vaccines against SARS-CoV-2, the novel coronavirus that causes COVID-19.

Without a doubt, the quality of your results hinges on the quality of the synthesized oligos, regardless of how their structures and properties are defined - large to small, simple to complex. Yet the multi-step process to synthesize them includes a number of variables that can impact both quality and yield.

Proactive measures, including use of the Thermo Scientific™ Savant™ SpeedVac™ System and other consistently high-performing Thermo Scientific and laboratory tools, help to reduce variability in your oligonucleotide post-synthesis

workflow. The SpeedVac system enhances speed and reliability so that you can have confidence in the quality of your oligos as well as the applications that they serve. For over 40 years, SpeedVac centrifugal vacuum concentrators have been used to remove sample solvents and concentrate or dry biological and non-biological samples in a wide variety of areas.

### Rapid and efficient oligo post-synthesis

In solid phase methods, oligos are cleaved from the substrate after synthesis and deprotected by adding a strong base, such as ammonia hydroxide or methylamine, to the reaction vial, tube, or microplate followed by heated incubation using a Thermo Scientific™ Digital Dry Bath/Block Heater or Digital Heating Shaking Drybath.

After incubation, SpeedVac removes this highly basic solvent from the reaction vessel and dries the oligos using a combination of three actions:

- **Centrifugation**-prevents bumping, boiling, and physical loss of the sample
- **Vacuum**-promotes solvent evaporation while preventing sample oxidation
- **Heat**-accelerates solvent evaporation while preventing sample freezing



Integrated models-consisting of the vacuum concentrator, cold trap, rotor and pump-offer the convenience of a complete system in a variety of sizes and optional rotor configurations to suit your sample vessel and throughput needs.

Semi-integrated models allow personalization of the SpeedVac system to your specific requirements including the option of oil-free vacuum pumps.

All models feature an interactive user interface, customizable and pre-programmed methods, safety features, and USB-enabled data transfer capability. An optional post-trap assembly with an ammonia neutralizing solution protects users and the surrounding environment from exposure to ammonia gas.

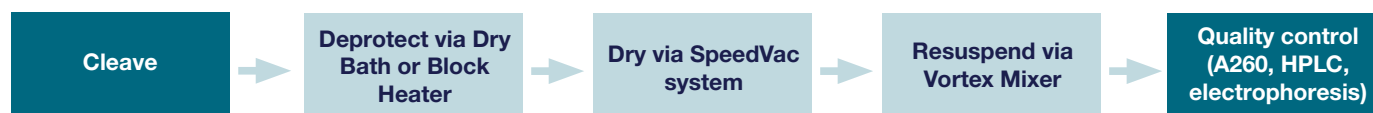
As they dry, the oligos are protected from oxidation via vacuum forces and from freezing via the addition of gentle heat. The result is a dry oligo film or pellet at the bottom of the sample container that is completely recoverable without the risk of sample loss due to electrostatic charges.

After solvent removal, Thermo Scientific™ Digital Vortex™ Mixers are used to resuspend the oligos in water or another reagent prior to quality control measures such as absorbance, HPLC, or electrophoresis.

## Summary

Protecting oligo sample integrity is of paramount importance to the success of downstream applications. The Savant SpeedVac system and other Thermo Scientific laboratory tools help to speed post-synthesis workflow efficiencies and reduce sources of variability, regardless of oligo type.

## Oligo post-synthesis workflow



## Ordering information

Model	Description	Cat. No.
DNA130	Small capacity SpeedVac system, integrated model	15819206
SPD1030	Medium capacity SpeedVac system, integrated model	15916171, 15849206
SPD2030	Large capacity SpeedVac system, integrated model	15839206, 15849206
SPD120P1	Large capacity SpeedVac system, Modular Kit	15916181, 15926181
SPD210P2	Large capacity SpeedVac system, Semi-Integrated Kit	15926181
ANT100, ANS121	Setup for ammonia neutralizing (includes mounting hardware for use with ammonia neutralizing solution- ANS121)	15382185, 10399102
DryBath/ Heating Block	Digital DryBath Heating Shaking DryBath	15382185, 15298844
Vortex Mixer	Digital Vortex Mixer	16534622

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