You Can Freeze HSQ

HSQ stored as liquid, -27°C

Stored frozen at -196°C (liquid nitrogen)

Freezing HSQ has no effect
Freezing point of MIBK = -85°C
HSQ contrast, comparison of frozen to liquid storage
Critical dose drops after 12 months of storage as liquid.

Frozen storage ⇒ -196°C
Liquid storage ⇒ -27°C
When HSQ goes bad, the first sign is a drop in dose (increased sensitivity). Also, scum between features becomes more pronounced.
Frozen at 77°K for 12 months

Liquid at -27°C for 12 months

Line edge roughness increases as HSQ deteriorates.
HSQ shelf life is ~ 9 months when stored at -27°C

HSQ shelf life at 77°K is very long – many years, at least

Liquid nitrogen storage units are reliable and inexpensive.

Worthington HC35
$1600 from Amazon
10 canisters
Uses < 0.5 liter/day
= 0.16 $/day
Top it off every two weeks.

CT Cryogenics CT 35/80
~ $700
6 canisters

4 ml HDPE bottles
VWR cat. #414004-151

Dispense the resist into 4 ml bottles then warm them up one at a time.

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