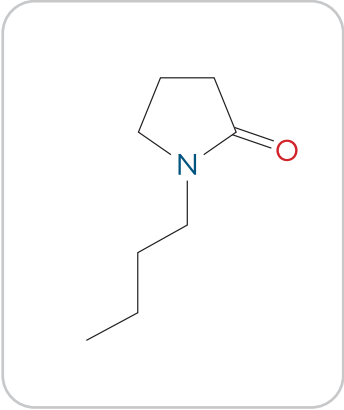
Use of TamiSolve NxG-PS as a Wash Reagent and Resin Transfer Solvent

TamiSolve NxG-PS (TamiSolve) is a high-boiling dipolar aprotic solvent (N-butylpyrrolidinone: CAS # 3470-98-2) that can be used as a wash substitute for DMF and NMP in peptide synthesis. Compared to DMF and NMP, TamiSolve provides reduced toxicity and increased safety (Flash Point = 108 °C). However, TamiSolve also has a significantly higher viscosity than either DMF or NMP and as such requires updates to both calibration of the main wash delivery and the relevant system settings for purging, washing and draining. TamiSolve can also be used as a resin transfer solvent with the HT12 and HT24 modules and requires a separate calibration of the delivery volume.

CAUTION
Please contact CEM for assistance when using TamiSolve as a reaction solvent (amino acids, DIC, Oxyma Pure, and Deprotection solvents.) Use of TamiSolve as a reaction solvent requires additional updates.

CAUTION
Liberty PRIME users: Contact CEM for assistance before using TamiSolve.

This document should be used in conjunction with the Liberty Blue Manual (P/N 600291) and the TamiSolve Safety Data Sheet (P/N 601402). Read and fully understand all documentation before operating the instrument.



WARNING
Proper precautions must be taken to avoid contact with reagents or reagent vapors. Protective gear should be worn as outlined in the user's safety program for hazardous materials and the reagent manufacturer's safety data sheet. Refer to these guidelines for proper handling and disposal of the reagents. Dispose of all waste in accordance with all applicable local, state, and federal health and safety.

Liberty Blue & Liberty Lite Instrument Settings

Use TamiSolve for the main (wash) and resin transfer (HT users only) solvent. Use DMF for the reaction solvents (amino acids, DIC, Oxyma Pure, and Deprotection.)

1. Use the "Change Bottle" procedure outlined in the Liberty Blue manual (P/N 600291) to change the solvent from DMF or NMP to TamiSolve.
2. Perform the Timed Addition Calibration procedures.
   - **2.1.** From the "Options" tab, select "Calibration."
   - **2.2.** Select "Timed Addition" and perform each of the following operations:
     - Wash
     - Wash Thru Manifold
     - Wash Thru RV Bottom
     - HT Transfer Solvent (if applicable)
     - HT Transfer Solvent Thru Frit (if applicable)
   - **2.3.** After completing all operations listed above, select " Close."

CAUTION
TamiSolve is significantly more viscous than either DMF or NMP. Due to its higher viscosity it flows much slower and the volume calibration (mL/sec) for main wash and resin transfer need to be calibrated anytime switching between TamiSolve and DMF or NMP. Failure to do this will lead to incorrect volume delivery.

3. Increase draining, bubbling, and purging Settings.
   - **3.1.** From the "Options" tab, select "Settings."
   - **3.2.** Open the "Liberty Blue" folder and enter the extended times (sec) shown below.

Setting	Parameter Values	
	Scale (mmol)	Seconds (sec)
"RV Drain" -> "Drain Time"	0.05-0.20 0.30-0.50 1.0-5.0	10 15 45
"Washing" -> "Bubble Time"	0.05-0.50 1.0-5.0	10 15
"Purge" -> "Manifold Wash Purge Time"	0.05-0.50 1.0-5.0	40 120

   - **3.3.** Select "Close."

CAUTION
TamiSolve requires longer draining, bubbling, and purge times. Failure to update parameters will lead to poor washing.