

PurIon

System Verification

Using Test Samples MSW

Background

This procedure is used to verify proper operation of the Teledyne ISCO PurIon Mass Spectrometer system by verifying proper calibration of the system.

Proper gradient formation, peak alignment and collection can be verified following the appropriate verification instructions for the system of interest (NextGen, EZPrep, ACCQPrep, etc.).

This system verification assumes that the user is familiar with the operation of the PurIon system. If concerns arise about operating the system, consult the user manual.

Required Apparatus and Reagents

- Test Mix MSW (Part#605234627) provided in the MS Accessory Kit
- Methanol with 0.1% formic acid, LC-MS grade (minimum 100mL) for use as carrier solvent

Procedure

1. Verify the PurIon is fitted with the ESI probe.
2. Place the carrier fluid pump inlet line into the reservoir containing the methanol/0.1% formic acid solution.
3. Prime the carrier fluid pump on the fluid interface using the 5 mL syringe provided.
4. From the MS menu, verify the PurIon is in 'Operate' mode. If it is not, select 'Operate' from the MS menu and allow five minutes for the heaters to warm up.
5. Select 'Method Development' from the MS menu.
6. Set the Start Mass at 200 and the End Mass at 600.
7. Verify that the Polarity is set to 'Positive'.
8. Verify the Ion Setting is set to 'TYPICAL'.
9. Using the 1 mL syringe and needle supplied in the MS Accessory Kit, withdraw 100 μ L of the MSW solution.
10. Switch the manual injection valve of the PurIon to the 'Load' position. Insert the 1 mL syringe filled with sample in the injection port and depress the syringe plunger to load the 100 μ L sample into the sample loop. Switch the manual injection valve to the 'Scan Mass' position.

11. Compare the mass spectrum with Figure 1. Table 1 includes the expected $[M^+]$ values. If the displayed spectrum fails to display the same values, repeat steps 2-10. If the repeated results fail to match the values, contact your Teledyne ISCO representative.

The spectra on the back of this document show the HR-MS for each compound along with a representative LR-MS (which would be what is displayed on the CombiFlash system or ACCQPrep with +/- 1 m/z display resolution).

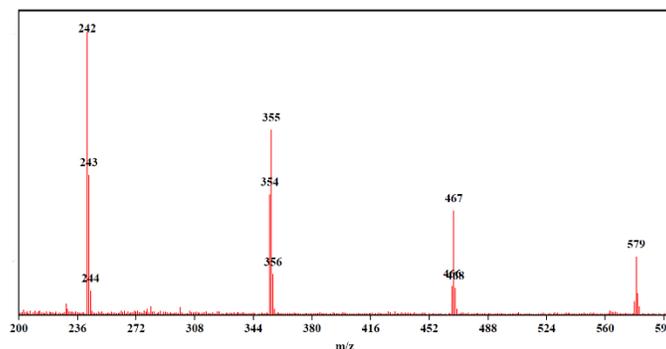


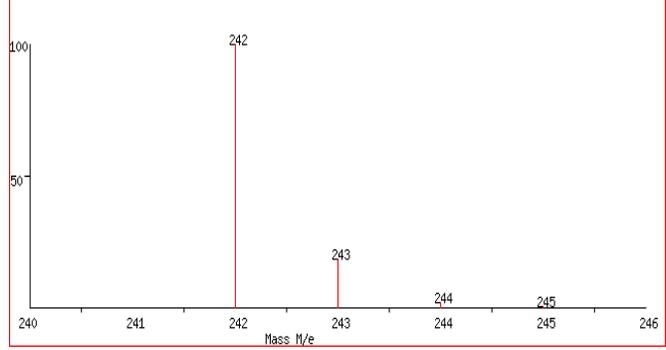
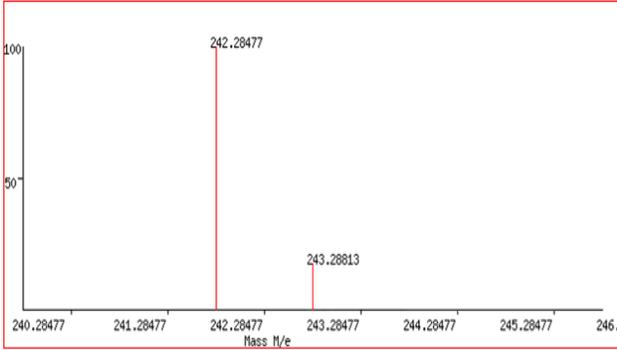
Figure 1: Expected results using MSW Test Mix

Table 1: Compounds in MSW Test Mix

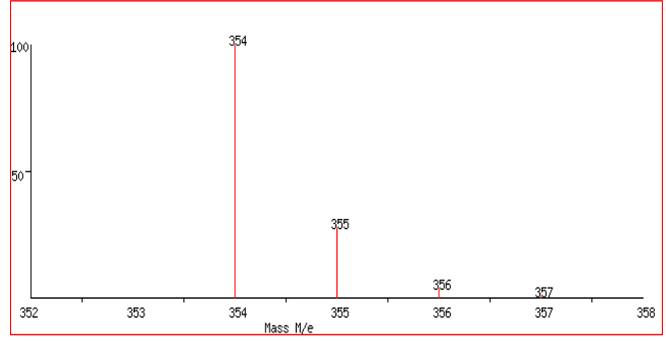
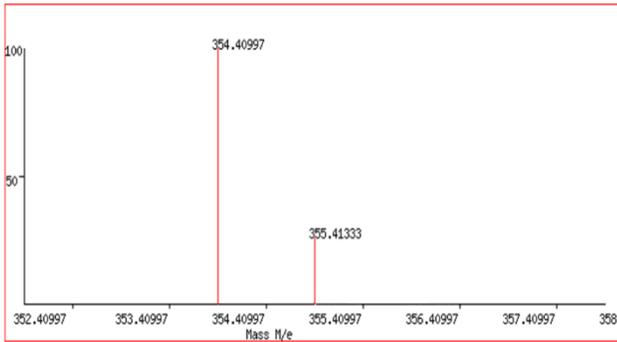
Test Compounds	Exact Mass	M^+ (minus loss of Bromine 79)
tetrabutylammonium bromide	321.2	242.3 (242)
tetrahexylammonium bromide	433.3	354.4 (354-355)
tetraoctylammonium bromide	545.5	466.5 (466-467)
tetrakis(decyl)ammonium bromide	657.6	578.7 (579)

Two possible masses are acceptable for the tetrahexylammonium bromide and tetraoctylammonium bromide. Both have exact masses (354.3 to 354.5; and 466.4 to 466.6 m/z) that may show as two possible whole integers on a properly calibrated system (+/- 0.1 m/z) based on rounding.

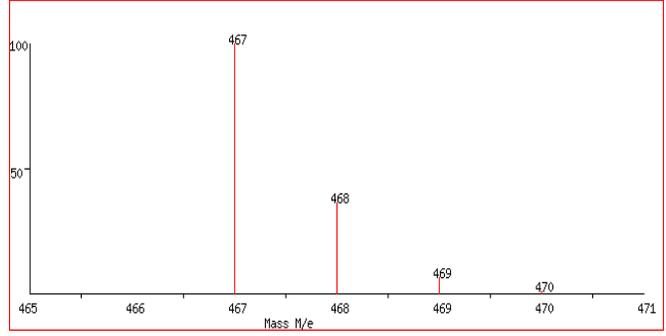
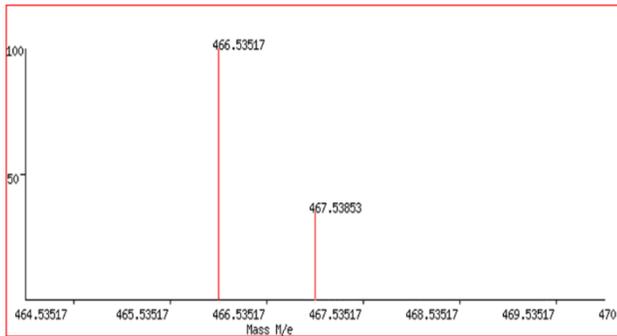
Tetrabutylammonium bromide
(Exact Mass without Br)



Tetrahexylammonium bromide
(Exact Mass without Br)



Tetraoctylammonium bromide
(Exact Mass without Br)



Tetrakis(decyl)ammonium bromide
(Exact Mass without Br)

