

SW-846 Update VI 8260D

Quality Control Type	Minimum frequency	Specification	Suggested Acceptance Criteria	Difference
Instrument performance check (Secs. 9.3.1, 11.3.1)	Prior to initial calibration	Must be verified prior to initial calibration	Meet ion ratio criteria for reference compound: 4-Bromofluorobenzene (Table 3), or alternative documented criteria	BFB tune is only required prior to an initial calibration and is no longer a daily QC requirement. BFB tune criteria now modeled after method 524.3 tune criteria.
Initial Calibration (ICAL) (Secs. 9.3.2, 11.3.2-11.3.5)	Prior to analyzing samples, and as needed if continuing performance criteria cannot be met	5 points minimum for RF and linear regressions, 6 points minimum for quadratic regressions; >90% of reported target analytes meet initial calibration criteria	For average response factor (RF) calibration model: $\leq 15\%$ RSD of RFs; For linear or quadratic regression model: $R \geq 0.995$ , $R^2 \geq 0.99$ ; Independent of calibration model: LLOQ standard recalculation (refit) is within $\pm 50\%$ of true value if it is the low calibration point; All other standards within $\pm 30\%$ of true value; Or, relative standard error (RSE) $\leq 20\%$ (Refer to Method 8000 and Reference 16 for calculation) See Method 8000 for additional criteria.	ARI will continue to use 15% RSD for initial calibrations per DOD requirements. The lowest applicable calibration point (MRL or LLOQ) will be recalculated against the calibration curve. The recalculated concentration of the low point should be within $\pm 50\%$ of the standard's true concentration. Analytes exceeding the requirement will be Q flagged to indicate an estimated value. An initial calibration is valid if >90% of reported target analytes meet both initial calibration fit criteria and the recalculated value is within $\pm 50\%$ of the true concentration.
ICAL Verification (SCV) (Secs. 9.3.2, 11.3.6) (Second source)	After each initial calibration, and prior to analyzing samples	Prepared from different source of target analytes than initial calibration standards	Calculated concentrations of target analytes are within $\pm 30\%$ of true value	No changes-same as 8260C. ARI will continue to use $\pm 20\%$ of true value for DOD projects
Continuing Calibration Verification (ICV/CCV) (Secs. 9.3.3, 11.4)	Once every 12 hours	>80% of target analytes meet CCV criteria	Targets are $\leq 20\%$ difference or drift; IS responses are within 50% to 200% of mid-point of ICAL or average of ICAL ISs; and RTs for ISs have not shifted >30 seconds relative to ICAL	No changes-same as 8260C
Blanks (Secs. 9.5, 9.6.1)	One method blank per preparation batch of 20 or fewer samples; other blanks as needed	NA	Target analyte concentrations in blanks are $< 1/2$ LLOQ, or $\leq 10\%$ of concentration in field samples	Method blanks must be analyzed after all initial calibrations and prior to any sample analysis. Method blanks must show all targets $< 1/2$ MRL or less than $1/10$ the amount in the sample.
Laboratory Control Sample (LCS) (Sec 9.6.2)	One per preparation batch of 20 or fewer samples	NA	Meets recovery criteria (CCV criteria may be used if LCS and CCV are identical)	No changes-same as 8260C
Duplicates and Matrix Spikes (Secs. 9.6.3)	A duplicate and matrix spike, or matrix spike/matrix spike	NA	Meets performance-based or project-defined recovery criteria for matrix	No changes-same as 8260C

	duplicate per preparation batch of 20 or fewer samples, provided adequate material is made available to the laboratory		spikes; Meets relative % difference between measured concentrations in sample and laboratory duplicate or in matrix spike/matrix spike duplicate;	
Surrogates (Secs. 9.7)	Added to each sample	NA	Meets performance-based recovery criteria established by the laboratory or criteria chosen for the project	No changes-same as 8260C
Internal Standards (Secs. 9.8, 11.5.6)	Added to each sample	NA	IS response is within 50 - 200% of the response of the same IS in the midpoint ICAL standard (or average of ICAL) or most recent CCV	Sample and associated QC internal standard areas will be compared against the opening ICV in each bracket. (The ICV/CCV internal standard areas will be compared against the mid-point of the initial calibration-no change)
Qualitative Analyte Identification (Sec. 11.6.1)	Each target analyte	NA	RT in sample is within $\pm 10$ sec of RT in midpoint ICAL or CCV standard or within $\pm 10$ seconds relative to the shift of the associated IS (delta RT of the IS $\pm 10$ seconds) Characteristic ion(s) are within $\pm 30\%$ of expected ion ratio in reference spectrum; or, match to reference library spectra $\geq 0.8$ (only for full mass range acquisition modes)	No changes-same as 8260C
Annual verification of the LLOQ	Each target analyte	Must be run independent of an initial calibration	LLOQ verifications should meet $\pm 20\%$ (advisory until in-house control limits can be calculated) of the standards true concentration when compared to the initial calibration	LLOQ verifications will be performed annually on every instrument.