

DFTPP and BFB Mass Spectral Ion Abundance Criteria

Official LECO Specifications

The Environmental Protection Agency (EPA) identifies specific criteria for hazardous waste test methods under the umbrella of SW-846. Several methods under this guidance, such as Method 8260 and 8270 which measure volatile and semivolatile organic compounds by GC-MS, have given manufacturers of mass spectrometers the ability to specify the acceptance criteria for the mass spectra of two compounds; Decafluorotriphenylphosphine (DFTPP) and 4-Bromofluorobenzene (BFB) used in verifying the performance of the mass spectrometer. This document establishes that criteria for LECO's Pegasus BT GC-MS Time-of-Flight Mass spectrometer for use in these methods. For example, in the latest edition of Method 8270 (E), Section 11.3.1 references instrument manufacturers' recommended DFTPP key ions and abundance criteria. For LECO Pegasus BT instruments, the criteria in Table 1 should be used.

Similarly, Method 8260 (D) Section 11.3.1 also references instrument manufacturers' recommended BFB key ions and abundance criteria. For the Pegasus BT, the criteria in Table 2 should be used.

Table 1. DFTPP Key ion and abundance criteria.

Mass	Ion Abundance Criteria
51	>10% and <85% of Base Mass
68	<5% of m/z 69
69	Present
70	<2% of m/z 69
127	>10% and <80% of Base Mass
197	<2% of m/z 198
198	>50% of m/z 442
199	>5% and <9% of m/z 198
275	>10% and <60% of Base Mass
365	>0.5% of m/z 198
441	<150% of m/z 443
442	>30% of m/z 198
443	>15% and <30% of m/z 442

Table 2. BFB Key ion and abundance criteria.

Mass	Ion Abundance Criteria
50	>10% and <40% of m/z 95
75	>30% and <60% of m/z 95
95	Base Peak
96	>5% and <9% of m/z 95
173	>0% and <2% of m/z 174
174	>50% and <100% of m/z 95
175	>5% and <9% of m/z 174
176	>95% and <101% of m/z 174
177	>5% and <9% of m/z 176

Note further that for certain methods it is implied that a tuning criteria is needed. For the Pegasus BT, no specific tuning for DFTPP or BFB is necessary. The above abundances will be met with standard tuning protocols on PFTBA (see Pegasus BT tuning in Instrument Manual).