



Technical Memo

Detailed Review of Qualifier Usage

Updated: November 5, 2013

Qualifiers are notes attached to data that provide detailed information. These notes are added when the appropriate conditions are met. Qualifiers or flags should not be consider a “bad” thing; they allow for the end-user to determine data usability as it pertains to their project.

Data Qualifiers/Flags

QUALIFIER/ FLAG	DEFINITION & EXPLANATION
B	<p>Indicates the analyte was found in the associated method blank as well as in the sample. It indicates probable laboratory contamination.</p> <p><i>Explanation: This flag warns the data user that contamination is suspected. This flag shall be used for a TIC as well as for a positively identified target compound.</i></p>
C	<p>Indicates analyte is a common laboratory contaminant</p> <p><i>Explanation: This flag, like the "B" flag, warns the data user that contamination is suspected. This flag shall be used for a TIC as well as for a positively identified target compound.</i></p>
D	<p>Indicates analyte was reported from diluted analysis</p> <p><i>Explanation: If a sample or extract is reanalyzed at a dilution factor greater than 1 due to any compound(s) exceeding the upper-level calibration standard, the DL suffix is appended to the Sample Number on Form 1 for the more diluted sample, and all reported concentrations on that Form 1 are flagged with the "D" qualifier. This alerts the user that any discrepancies between the reported concentrations may be due to dilution of the sample or extract.</i></p>

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E	<p>Identifies a compound concentration that exceeds the upper level of the calibration range of the instrument</p> <p><i>Explanation: This flag identifies compounds whose response exceed the upper level of the calibration range of the instrument for that specific analysis. If one or more compounds have a response greater than the response of the highest standard in the initial calibration, the sample or extract shall be diluted and reanalyzed. All such compounds with responses greater than the response of the highest standard in the initial calibration shall have the result flagged with an "E" on Form I for the original analysis. The results of both analyses shall be reported on separate copies of Form 1. The Form 1 for the diluted sample shall have "DL" suffix appended to the Sample Number.</i></p> <p>NOTE: In some circumstances, the lab may not be able to report without an "E" flag. In these cases, the results should be considered estimated.</p>
J	<p>Indicates an estimated value. This flag is used when the concentration in the sample is below the RL but above the MDL.</p> <p><i>Explanation: This flag indicates an estimated value due to concentrations detected between the RL and MDL OR estimating a concentration for Tentatively Identified Compounds (TICs) where a 1:1 response is assumed. TIC concentrations will always be J qualified, even if the compound is unknown.</i></p>
N	<p>Presumptive evidence of a compound from the use of GC/MS library search.</p> <p><i>Explanation: This flag indicates presumptive evidence of a compound. This flag is only used for TICs, where the identification is based on a mass spectral library search and must be used in combination with the J flag. It is applied to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, or for an "unknown" (no matches $\geq 85\%$), the "N" flag is not used.</i></p>

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U Air Only	This flag indicates the compound was analyzed for but not detected at the reporting limit (RL). <i>Explanation: This flag is used in lieu of the ND designation. For example, if a result is reported as 0.20 U, it designates that the analyte is ND at the RL 0.20.</i>

Qualifiers X,Y,Z are reserved for laboratory use and may be uniquely defined by individual laboratories. IAL's usage of the X and Z qualifiers is as follows:	
X Metals Only	Indicates samples analyzed for total and dissolved metals differ at <20% RPD <i>Explanation: Samples analyzed for total and dissolved metals may have slightly different concentrations due to normal variations in the analytical process. Slightly higher concentrations present in dissolved versus total analyses can occur even when all QC are acceptable. A 20% RPD between total and dissolved results is used to evaluate if the concentrations are statistically indistinguishable</i>
Z GC/MS Only	Indicates internal standard failure. Sample results are either biased high or biased low. <i>Explanation: The internal standard failed in specified sample, likely due to matrix interference. When a failure is found, the sample must be run twice to confirm the failure was a matrix effect, not an instrumentation issue. When internal standards fail high, sample results are biased low; when internal standards fail low, sample results are biased high. This bias information will be explained in the case narrative, as applicable.</i>

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