

## C13 Mini-Matrix Proposal

1. From the slate of oils offered, select the two oils that are believed to separate the most on the critical parameter(s) of the C13 test. These are the oils that will give the best chance of showing discrimination with a small number of tests.
2. Eliminate the CCV factor from the mini-matrix by determining ahead of time the final CCV configuration.
3. Run a four-test program in the two independent labs consisting of one run on each oil at each lab in different stands. If run concurrently, these four tests can be completed within one month. Stop at this point and examine (analyze) the data. These four tests will provide a comparison of oil performance, a comparison of the two labs, and a crude estimate of precision. Consider the strength of the evidence of oil discrimination. Also consider any observed lab differences and the value of this data set as a baseline against which other labs could be compared. Decide whether or not to continue the mini-matrix.
4. If it is decided to continue, pick two single-stand labs and run one test on each oil. If run concurrently, these two tests can be completed within one month. Stop at this point and re-examine (re-analyze) the data. If possible, use the four tests run by the independent labs as a baseline for assessing the relative severity of the two single-stand labs. Re-check the level of oil discrimination and update the precision estimate. Decide whether or not additional tests are needed.
5. If it is decided that additional tests are needed, run one more test on each oil using the two remaining single-stand labs. If run concurrently, these two tests can be completed within one month. Assess relative lab severity, re-check the level of oil discrimination, and update the precision estimate.
6. Use the two stands at the OEM lab in a way that best supports the overall mini-matrix effort. For example, these stands could be used early in the process to pin down the final test stand configuration. Or, these stands could be used to replicate the initial runs made by the two independent labs.
7. If oil Ref #1 is selected as one of the oils for the mini-matrix, a comparison with “current severity” will be possible. Any observed change from current severity could be due to the individual or combined effects of fuel, PRL batch, CCV, and lab/stand. This comparison should be given the lowest priority among the mini-matrix objectives.

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