

TOA4 Data Import File Requirements

Requirements

1. **Format.** The data file must be a comma- or tab-delimited text file in which the first row contains field names and each subsequent row contains oil sample test data (one row per sample). Acceptable character encodings are ASCII, UTF-8, and ISO-8859-1 (also called Latin-1). Most spreadsheet and database software can read and write files in this format.
2. **Field names in first row.** The first row of the file must contain field names recognized by TOA4. Order is not important. Extra fields not recognized by TOA4 are allowed but may be ignored or in some cases may give rise to "duplicate field" errors. The TOA4 fields most commonly used in data files are described in the Appendix below.
3. **Data rows.** Items in each row must be separated by either commas or tab characters. Only one kind of separator character (comma or tab) should be used – not both in the same file. Text items should be enclosed in quotes ("). Dates may optionally be enclosed in quotes. A single data file can contain more than one sample per equipment, and it may also contain data for more than one piece of equipment.
4. **Equipment identification.** Each data row must contain nonblank values for either *equipnum* or *serialnum*, and also for *apprtype*. The equipment identification (*equipnum* or *serialnum*, combined with *apprtype*) must agree exactly with the equipment identification used in the client's TOA4 database, or TOA4 will refuse to import the data.
5. **Sample identification.** In addition to the equipment identification, each data row must contain a nonblank value for *sampledate*. If a *tank* identifier is also provided for each sample, it must conform to the conventions used in the client's TOA4 database.
6. **Data for same samples distributed over multiple files.** If dissolved-gas data and fluid test data for the same oil sample are provided in separate data files, the *tank* and *sampledate* values given in each file for corresponding samples must be the same. If *container_id* is given, it must be the same in both files for corresponding samples.
7. **Dates.** Date values (e.g. for *sampledate*) must be all-numeric, with a four-digit year. Unless the client specifically requests otherwise, date values should be given in ISO 8601 format. Acceptable variants are: *yyyy-mm-dd* or *yyyy/mm/dd* or *yyyy.mm.dd* or *yyyymmdd*. For example, these date expressions fit the recommended format: **2006-06-13** or **2006/06/13** or **2006.06.13** or **20060613**. Omit time of day (hh:mm or hh:mm:ss) from all dates unless it is significant. Non-ISO numeric date formats which can be used are in the form month-day-year or day-month-year, with a separator such as a slash (/), dash (-), or dot (.). Roman numeral months are not accepted.
8. **Text data.** Text data items must not contain commas, tab characters, carriage return characters, embedded quotation marks, or binary data. Avoid including leading or trailing space characters in text data items.
9. **Numeric data.** Numeric data items must not contain units or other non-numeric characters. For example, **37 C** is not a valid entry for *fluidtempc* because the letter C should not be included. Likewise, **<5** is not a valid entry for *h2* because the less-than symbol is not allowed.
10. **Blank data.** Blank data items must be empty, not containing space characters or string expressions such as "" or " ".

Recommendations

1. To insure compatibility with the client's TOA4 database, the client should provide the correct *equipnum* (or *serialnum*), *tank*, and *sampledate* for each sample submitted to the lab.
2. Unused columns can be omitted from the data file. For example, if the lab does not report values for propane and propylene, then the *c3h8* and *c3h6* columns can be omitted. Similarly, if trace elements are not reported in a set of fluid quality results, then the trace element columns can be omitted from the data file.
3. TOA4 expects import files to have an extension of .txt or .csv. Please be careful in naming files because the client may overwrite data files or have other problems if files have duplicate names. One suggestion would be to include a date or job number in the filename, e.g. 20070321.csv.

See also

TOA4 Online analysis variables and related fields. Names and specifications of all TOA4 data fields. See:

<https://www.toa4online.com/toa/help/variables>

Detailed data file requirements help page in TOA4 Online. See:

https://www.toa4online.com/toa/help/datafiles_req

Examples of TOA4 data files. Download from:

http://www.deltaxresearch.com/arpaxnog/toa4_example_data.zip

Technical assistance

For advice and technical assistance related to TOA4 Online data imports, contact Delta-X Research:

Web site: <http://www.deltaxresearch.com/>
Support blog: <http://toa4tech.blogspot.com/>
E-mail: support@deltaxresearch.com
Telephone: 250-592-2998

Appendix – Most commonly used TOA4 data fields

Name	Format	Description
apprtype	text(10)	Apparatus type
equipnum	text(50)	Unique permanent identifier of equipment
serialnum	text(50)	Equipment serial number
tank	text(20)	Tank or sampling valve identifier
sampledate	date	When sample was collected
container_id	text(30)	Sample syringe or jar ID
fluidtempc	integer	Temperature of oil as sampled
sampler	text(30)	Initials or name of sampler
reason	text(30)	Reason for sampling
jobnum	text(30)	Job number for batch of samples
lab_name	text(30)	Name of analytical lab
labrcvdate	date	Date when lab received sample
labtestdate	date	Date when lab analysis was done
labreportnum	text(30)	Reference number used by test lab
ordernum	text(30)	Contract or PO number for analysis
h2	integer	Hydrogen (ppm = microliters per liter)
ch4	integer	Methane
c2h6	integer	Ethane
c2h4	integer	Ethylene
c2h2	integer	Acetylene
c3h8	integer	Propane
c3h6	integer	Propylene
co	integer	Carbon monoxide
co2	integer	Carbon dioxide
o2	integer	Oxygen
n2	integer	Nitrogen
acidnum	n.nn	Acid number (mg KOH/g)
ift	n.n	Interfacial tension (millinewtons per meter – same as dynes per centimeter)
d1816_1	n.n	Dielectric breakdown–VDE electrode–1mm (kV)
d1816_2	n.n	Dielectric breakdown–VDE electrode–2mm (kV)
d877	n.n	Dielectric breakdown–flat electrode (kV)
iec156	n.n	Dielectric breakdown – IEC 156 (kV)
pf25	n.nnn	Fluid power factor at 25 C (percent)
pf100	n.nnn	Fluid power factor at 100 C (percent)
tan_delta	n.nnn	Fluid dissipation factor (tan delta) (percent)
inhibitor	n.nnn	Oxidation inhibitor concentration (percent)
sg	n.nnn	Specific gravity
color	n.n	Fluid color index
d1275a	text(30)	CORROSIVE or NON-CORROSIVE
d1275b	text(30)	CORROSIVE or NON-CORROSIVE
visual	text(30)	Standardized oil appearance descriptive text
water	integer	Water content of insulating fluid (microliters per liter)
relsaturation	integer	Relative saturation of water in insul. fluid (percent) (INCLUDE ONLY IF MEASURED DIRECTLY)
totalpcb	integer	Total PCB concentration (milligrams per kilogram)
copper	n.n	Metal concentration (micrograms per liter) (OTHER METALS TREATED SIMILARLY)