



Applying for accreditation to perform ammonia testing using the colorimetric procedure (HACH TNTPlus)

If you wish to pursue certification for ammonia by the TNT_{Plus} method, you will have to do the following:

1. Purchase the desired TNT_{Plus} Ammonia reagent set. Most that have become certified for ammonia have used either the 830 reagent set which has a range from the LOD to 2.0 mg/L or the 831 reagent set that has a published range of 1 to 12 mg/L.
The 831 kit is appropriate for pond/lagoon systems that during the winter months have ammonia values in the 10-30 ppm range. Labs have performed successful LOD determinations down to 0.5 ppm or below. Either set will work fine. We recommend the 830 reagent set for the average WWTP.
The 832 reagent set has a range of about 2 to 47 mg/L. The program does not believe that the 832 reagent set will not give you adequate detection limits for most discharge permits.
2. Perform an LOD study.
3. Analyze a PT sample for ammonia using the TNT_{Plus} method. Make sure you **report the proper method code** when you submit the results to the PT provider.

Note that this method has been designated as equivalent to EPA 350.1 for the purposes of regulatory reporting of Ammonia (as nitrogen). The following PT method codes can be successfully used.

10063602	EPA 350.1	1993	Ammonia Nitrogen - Colorimetric, Auto Phenate
10279002	EPA 350.1	1974	Ammonia Nitrogen - Colorimetric, Auto Phenate
10063408	EPA 350.1	1978	Ammonia Nitrogen - Colorimetric, Auto Phenate
10063204	EPA 350.1		Ammonia Nitrogen - Colorimetric, Auto Phenate
60005007	HACH 10205	2008	Ammonia Nitrogen by Salicylate Method

4. Perform an initial demonstration of capability (IDC) for each analyst that will be performing the test.
5. **Complete and submit a “revised application” for certification.**
General application information can be found at this link.
<http://dnr.wi.gov/regulations/labcert/>
Main application form: <http://dnr.wi.gov/regulations/labcert/#tabx2.html>

Attachment B (WWTP)

<http://dnr.wi.gov/Regulations/labCert/documents/AppWWTP.pdf>

or Attachment A1 (Commercial labs)

<http://dnr.wi.gov/Regulations/labCert/documents/App1AQR5.pdf>

6. Remember, NR149 rules require certification based on technology, analyte and matrix. If you are currently certified for ammonia by the ISE method (**Ammonia as N by ISE**), you cannot automatically switch to the TNT_{Plus} method without first obtaining certification for ammonia by the colorimetric technology (**Ammonia as N by Colorimetry**).



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7. Submit the application along with a check for the application fee. *The fee is 3 RVU units (\$190.50) if a simple revised application and you already hold accreditation for phosphorus by the Colorimetry technology. If you do not hold accreditation for colorimetry, there is an additional 2 RVU fee for adding the technology, making the total application cost \$ 317.50. Note that the cost per RVU is currently \$63.50 per RVU. This value is subject to change July 1 of each year. **Beginning July 1, 2015, the cost per RVU is \$65.50.***
8. You must also include your LOD study, IDC, a copy of your calibration curve and your method SOP. Your auditor will need this information to assess your application. It is better to submit this information up front otherwise certification will likely be delayed.

Disposal of reacted (and unreacted) Test 'n Tubes

The Hach TNT830 (and 831, 832) uses a reagent called nitroprusside ($\text{Na}_2[\text{Fe}(\text{CN})_5\text{NO}] \cdot 2\text{H}_2\text{O}$). This is an iron cyanide complex. Once you complete the test you have a cyanide waste. Hach has determined that there are trace levels (6 to 14 ug/l) of free cyanide in the reacted sample. It is the waste generator responsibility to determine if it is a hazardous waste. The waste generator in this case is the laboratory using this reagent.

Under s. NR 661.23(1)(e), Wisconsin Adm. Code, cyanide bearing waste could be a hazardous waste when:

(e) It is a cyanide or sulfide bearing waste which, when exposed to pH conditions between 2 and 12.5, can generate toxic gases, vapors or fumes in a quantity sufficient to present a danger to human health or the environment.

Cyanide is a safety concern. So be careful. Keep it away from acid. Only handle it in a well-ventilated area. Properly dispose of this material.

Additional tools & resources

Please contact the LabCert program or your auditor to obtain copies of the following items:

- Example SOPs for Ammonia by the TNT_{Plus} method using the 830 and 831 reagent sets. Chris Groh (Wisconsin Rural Water Association) initially wrote the SOPs and George Bowman (WDNR Lab Certification) added more details on the standard curve prep and corrective actions.
- The illustrated Hach TNT830 method.
- The official Hach TNT_{Plus} method 10205 written in the EPA format.
- The ammonia distillation study that Hach performed to show that preliminary distillation was unnecessary prior to analysis.
- An Excel spreadsheet that contains an example calibration with an auto-calculating feature for analysis of your samples. Another spreadsheet is an example of a typical LOD study.
- Contact information for several facilities using the TNT_{Plus} ammonia method. We may be able to put you in touch with other facilities using this method to offer their advice.

Please feel free to contact the [LabCert program](#) if you have any questions.