



Trinity College

HARTFORD CONNECTICUT

Trinity Concrete Analysis

Sample from: **Name**
Address

Date: **Date**

ID: **#####**

Analyses performed by: Dr. Christoph Geiss and Dr. Jonathan Gourley of Trinity College's Environmental Science Program

The Trinity Concrete Analysis detects the presence of pyrrhotite through a thermo-magnetic measurement and quantifies the amount of sulfur through elemental chromatography. Pyrrhotite is an iron sulfide mineral that is believed to be responsible for the premature deterioration of concrete basement walls. The two tests combined can estimate pyrrhotite in a sample to as low as 0.5% pyrrhotite. Assuming all the sulfur in the concrete sample is bound in pyrrhotite, the concentration of pyrrhotite is approximately 2.5 times the value of the concentration of sulfur. Since pyrrhotite is unlikely the only sulfur mineral present, this value should be considered a maximum estimate of pyrrhotite concentration. As of this report's date there is no State or Federal standard for pyrrhotite concentrations in concrete. This test simply confirms the presence of the mineral pyrrhotite in the sample(s) provided, estimates the maximum concentration and compares it (them) to the results obtained from other similar samples. The test cannot predict what will happen to the concrete in the future.

Results:

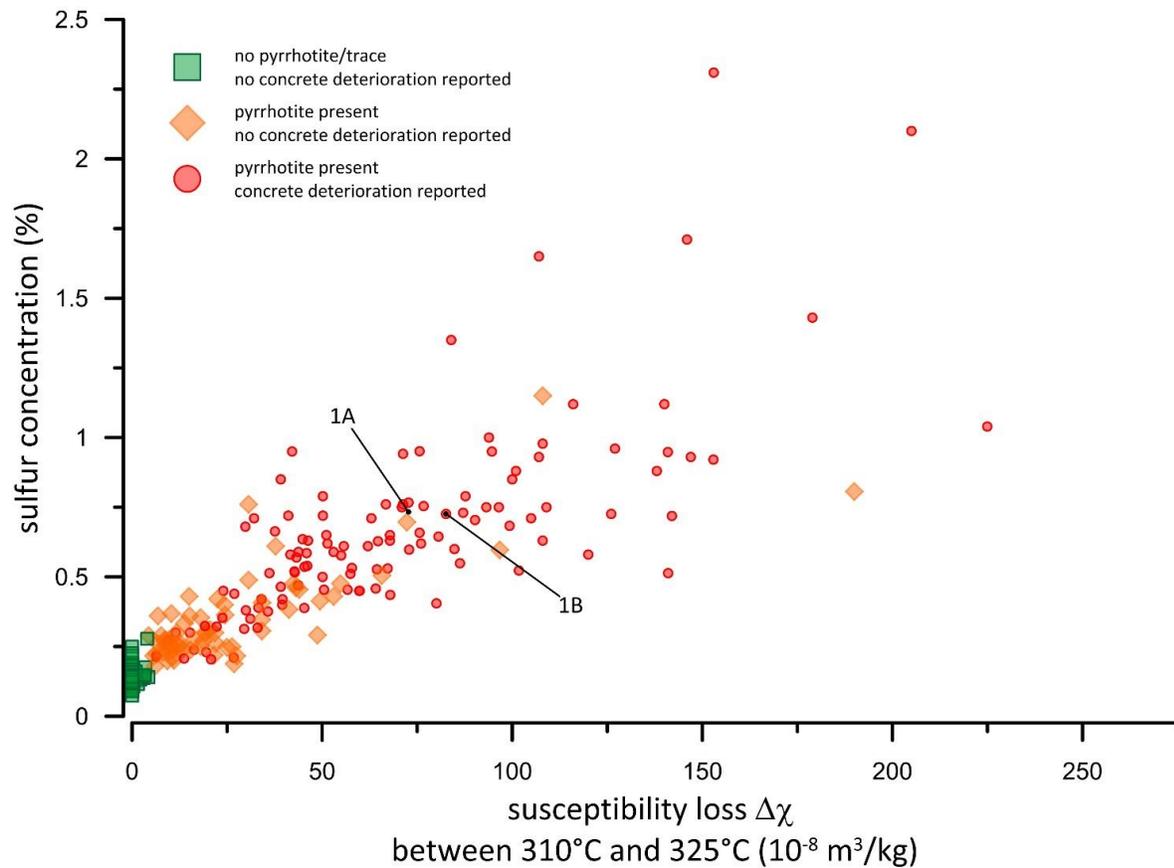
SAMPLE	Loss in Magnetic Susceptibility ($10^{-8}\text{m}^3/\text{kg}$)	Average concentration of Sulfur (%)	Estimated Pyrrhotite max concentration (%)
1A	72.7	0.733	1.83
1B	82.6	0.726	1.82

Pyrrhotite was detected in samples 1A and 1B (home foundation cores).

Graphical comparison:

Samples were plotted (see reverse side) with similar concrete basement samples analyzed to date. The graph shows a relationship between the amount of pyrrhotite (as measured via magnetic susceptibility) on the horizontal axis and the concentration of sulfur on the vertical axis. There are other minerals that could contain sulfur in concrete and therefore samples that are clean of pyrrhotite still may show some minor sulfur concentrations (as seen in the range of sulfur concentrations for samples with no magnetic signal due to pyrrhotite).

[continued on reverse]



Disclaimer and Limitation of Liability:

The analytical work performed in furtherance of this Trinity Concrete Analysis was conducted in accordance with standard laboratory practices and the data reflected in this report reflects Trinity College's ("Trinity") reasonable attempt to generate accurate results for the specific sample(s) received by Trinity on [date]. The results of this Trinity Concrete Analysis pertain only to the samples analyzed in preparation of this report and should not be used in the interpretation of any other analysis. This report may only be reproduced in full and may not be reproduced without Trinity's express written consent.

Trinity, its agents, and employees make no guarantees or warranties of any kind relating to the Trinity Concrete Analysis performed and the data furnished hereunder. Trinity hereby disclaims all warranties of any kind including, but not limited to, any express warranties, statutory warranties, and any implied warranties of merchantability or fitness for a particular purpose. Under no circumstances will Trinity, its agents, or employees be liable or responsible for any direct, indirect, incidental, consequential (including damages from loss of business, lost profits or goodwill, litigation, or the like), special, exemplary, punitive, or other damages, under any legal theory arising out of or in any way relating to the Trinity Concrete Analysis performed and the data furnished by Trinity, its agents, or employees.

The disclaimers and limitations set forth in this Trinity Concrete Analysis are an integral part of Trinity's pricing and delivery of this Trinity Concrete Analysis and the recipient accepts these terms.