

X-ray diffraction is an invaluable tool for identification of fine-grained, crystalline compounds in construction materials. This method has a significant application in:

- Cement Analysis
- Hardened Mortar and Grout Analyses
- Backfill Materials Analyses
- Efflorescence Deposits Analyses
- Potentially Expansive Materials Analyses
- Portland Cement and Gypsum Plaster Analyses

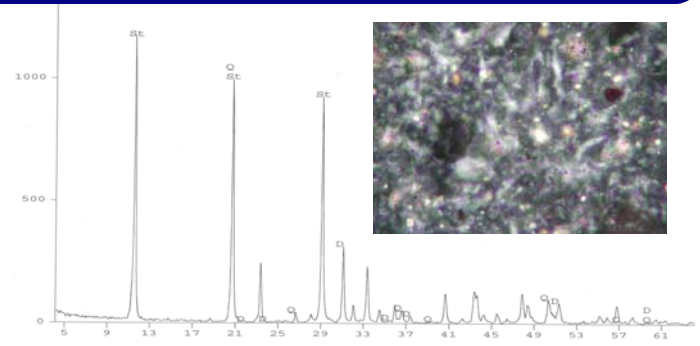
Similar to DNA fingerprinting, x-ray diffraction identifies crystalline compounds from their characteristic set of diffraction patterns. This method has wide applications both in materials evaluations and in forensic investigations of construction materials.

CMC has a Siemens D-5000 X-ray diffractometer, which analyzes various construction materials. The method is commonly used in conjunction with petrographic examinations.



X-Ray Diffraction (XRD)

Construction Materials Consultants, Inc.



Lifting of a rail post was found to be due to cyclic freezing of an unprotected gypsum-based shrinkage compensating, anchoring grout. Gypsum was detected in the XRD pattern and by microscopes.

CMC

Construction Materials Consultants, Inc.

For detailed information about other testing, evaluation, and consulting services, please visit us online at:

www.cmc-concrete.com

White efflorescence deposits on a scaled ashlar sandstone façade were detected in XRD to be sodium sulfate salts—thenardite and mirabilite. Salt Hydration Distress was found to be the cause of scaling.

