

Sang Kim | Senior Associate



EDUCATION

- Seoul National University
 - Bachelor of Science, Textile Engineering, 1992
 - Master of Science, Fiber and Polymer Science, 1994
 - Doctor of Philosophy, Materials Science, Polymer Science Concentration, 1999

PRACTICE AREAS

- Construction Materials
- Coatings and Sealants
- Plastic Pipes and Fittings
- Roofing and Waterproofing
- Failure Analysis
- Chemical Analysis
- Microscopy
- Materials Evaluation and Research

PROFESSIONAL AFFILIATIONS

- ASTM International
- Society of Plastics Engineers

TECHNICAL COMMITTEES

- ASTM 16 - Thermal Insulation

CONTACT

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EXPERIENCE

Sang Kim's consulting work focuses extensively on failure analysis, product evaluation and research of construction materials. His expertise includes laboratory investigations and testing of organic materials across diverse applications, including coatings, sealants, adhesives, waterproofing, insulation, windows, sealers, greases, and polymer concrete. Dr. Kim is committed to advancing analytical capabilities and conducting research projects to enhance construction materials' performance and reliability.

Dr. Kim adopts a holistic approach to material evaluation, integrating structure and performance through a comprehensive suite of analytical techniques. These include Fourier transform infrared spectroscopy, thermal analysis, optical and scanning electron microscopy, accelerated weathering, and mechanical testing.

Dr. Kim joined WJE in 2022 after a distinguished career as an expert in product development, specializing in new material design, process innovation, advanced metrology, and the development of nonstandard analytical methods.

REPRESENTATIVE PROJECTS

Coatings and Sealants

- Failure analysis and evaluation of chemical and physical properties
- Component identification, proportion analysis, and contamination investigation
- Detection of bond inhibiting materials using microscopical and spectroscopical methods
- Manufacturing Plant - TX: Evaluation of coating failures on concrete waffle panels
- Solar Farm - TX: Assessment of coating failures leading to pile corrosion
- Warehouse - TX: Investigation of delaminated coatings
- Commercial - FL: Evaluation of uncured sealants contributing to water leakage
- Commercial - CA: Investigation of contamination in glazing sealants

Roofing and Waterproofing

- Identification and assessment of membranes, coatings, adhesives, and insulation materials
- Testing of physical properties and wind resistance for damage investigations
- Residential/Commercial - Various Locations: Investigation of delaminated asphalt shingles
- Residential/Commercial - Various Locations: Evaluation of distressed roofing systems and insulation systems

Failure Analysis

- Commercial - CA: Investigation of delamination of glass units
- Solar Farms - TX: Investigation of distressed combiner boxes
- Residential/Commercial - Various Locations: Investigation of environmental stress cracking in plastic pipes
- Industrial - WA: Investigation of weathering effects on plastic structures and accelerated laboratory testing
- Industrial - KY: Assessment of distressed fiber reinforced polymer structural members

Chemical Analysis

- Identification of components or contaminations, evaluation of aging or distress, failure analysis, and product evaluation
- Chemical analysis and property evaluation of paints, coatings, membranes, sealants, foams, greases, and moisture
- Application of advanced techniques in chemical and mechanical imaging

Microscopy

- Evaluation of coatings, structures, corrosion, cementitious systems, and other systems
- Scanning electron microscopy with energy dispersive X-ray spectroscopy for failure analysis and material identification

Materials Evaluation and Research

- Compatibility analysis of silicone sealants with bituminous waterproofing materials
- Long-term expansion and compression cycling tests of joint sealants
- Thermal and mechanical cycling evaluation of laylights for stabilization repair