



**UNSW**  
SYDNEY



## Bitumen and Asphalt Research Laboratory

Centre for Infrastructure, Engineering & Safety (CIES) has gained global recognition for its outstanding work in both experimental and theoretical research, as well as practical applications. We strive to enhance the safety, reliability, sustainability, and cost-effectiveness of infrastructure. Under the leadership of Associate Professor Ailar Hajimohammadi, our Asphalt Research Laboratory is committed to transforming asphalt technology. Our primary goals include developing asphalt materials that are both longer lasting and eco-friendly.

### Competitive advantage

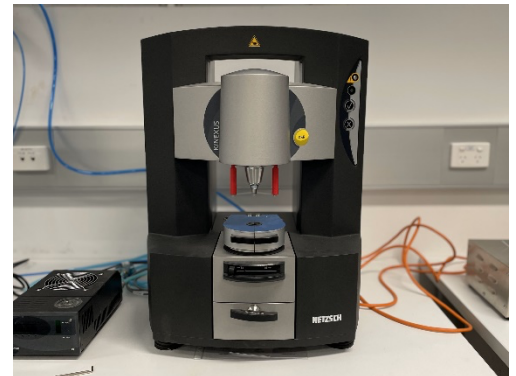
- Extensive collaboration with industry leaders for real-world applications
- Award-winning faculty and researchers with global recognition
- Cutting-edge facilities equipped with the latest asphalt testing technologies

### Impact

- Pioneering research in sustainable and recyclable asphalt materials by tackling the obstacles of waste material utilization in bitumen modifications and asphalt production.
- Addressing the challenges of aging infrastructure and increasing traffic loads through innovative asphalt solutions.
- Leading the way in research that promotes the reuse and recycling of asphalt materials, thereby reducing waste and contributing to a more sustainable and circular economy.

### Capabilities and facilities

- **Advanced Binder Analysis Suite:** Equipped with SARA Analysis technology for comprehensive bitumen fractionation.
- **Comprehensive Binder Profiling Tools:** Features a Dynamic Shear Rheometer, Penetrometer, Brookfield Viscometer, and Ring and Ball Apparatus for in-depth binder characterization.
- **Aging Simulation Technologies:** Utilizes Rotational Thin Film Oven and Pressure Aging Vessel for precise short- and long-term aging simulations of binders.
- **High-Shear Mixing Capabilities:** Specialized High Shear Mixer for crafting modified binders, including polymer-modified and waste plastic applications.
- **Precision Asphalt Sampling and Testing:** Employs a Fully Electro-Mechanical GALILEO Gyrotory Compactor for asphalt sample preparation and evaluation.
- **Advanced Mixture Performance Assessment:** Universal Testing Machine (UTM) and Four-Point Bending Apparatus designed for asphalt mixture performance testing.



We invite industry partners, researchers, and students to collaborate on bitumen and asphalt research projects.