

Western Research

I N S T I T U T E

**World-class expertise in oil refining
and petroleum processing**



Engineering



Research



Chemistry



From lab-scale to pilot units

RenuMAT

RENewable Upcycling Materials & Asphalt Technologies

- Business unit specialized in lab-scale chemistry
- **Hydrocarbons beyond combustion** (products: asphalt binders, additives, mesophase pitch, carbon fibers... / feedstocks: coal, oil refining by-products, wastes...), **waste upcycling & circular economy** (asphalt, plastics, composites, biomass,...), **formulation, analytical chemistry & rheology**



SET

Sustainable Emerging Technologies

- Business unit specialized in pilot-scale units
- **Hydrocarbon beyond combustion, waste upcycling, refining/distillation, oil partial upgrading & Solvent DeAsphalting (SDA), catalyst development/testing, pilot/demonstration-scale plants**

Solvent DeAsphalting pilot

With over 15 years of client success, WRI's SDA **flexible pilot facility** bridges the gap between process development and commercialization through integrated testing and laboratory analysis:

- Scalable feed rates: **0.5–10 barrels/day**
- **Versatile solvent matrix:** Propane, butane, pentane, hexane and custom blends
- **Tailored pilot systems:** Established extraction technologies or custom pilot systems developed with our team

KBR ROSE® Technology

WRI proudly hosts KBR's market-leading ROSE® supercritical SDA technology, enabling feedstock evaluation and process scale-up using an industrially relevant pilot configuration

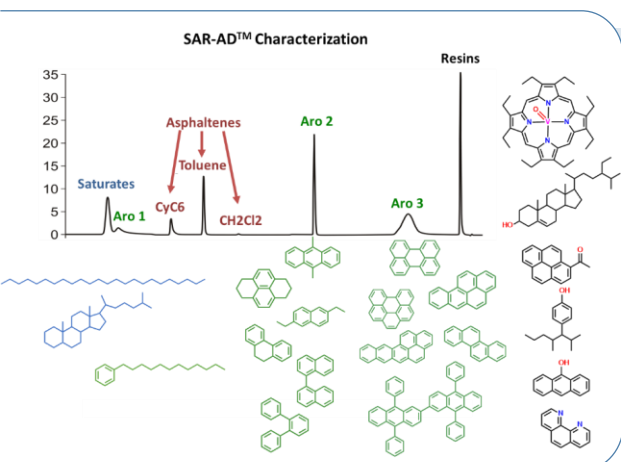


Distillation at any scale

WRI bridges the gap between laboratory R&D and pilot production with **flexible distillation systems** designed for **complex feedstocks**.

- **1 L:** Precision glass system, vacuum to 50 mTorr, and 315°C boiling point
- **10 L:** Stainless steel system with structured packing, up to 400°C
- **200 L:** Pilot-scale stainless steel system for advanced fractionation up to 400°C

Partner with us to **isolate high-value fractions** with precise separation and thermal control



Advanced SAR-AD™ separation

WRI's proprietary method combines **Asphaltenes Determinator (AD)** and **saturates, aromatics, resins (SAR)** separation, giving results in <2 hrs from milligrams of sample

Optimize your refining operations using SAR-AD™ to **select** and identify **crude oil (fingerprinting)**, **reduce fouling**, document **asphaltene stability**, and improve **upgrading and refinery efficiency**

SAR-AD™ is also used for other industrial applications:

- **Asphalt paving and roofing:** fingerprinting, formulation, additives (polymers, recycling agents...), recycling, process optimization (flux selection, air-blowing...), aging
- **Carbon materials:** feedstock selection and optimization

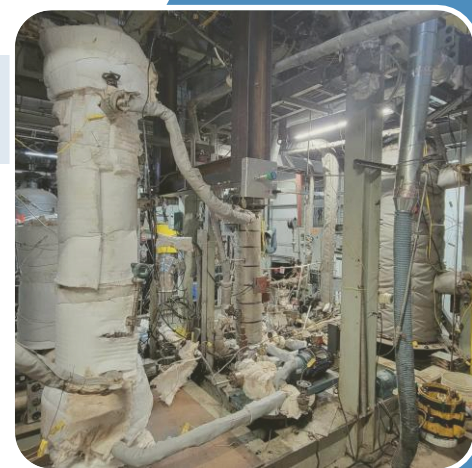
Control Fouling

WRI's custom **fouling evaluation services** deliver real-time, commercial-grade data to help you deploy the perfect preventive solution or removal protocol

From benchtop screening to large-scale pilots, we **simulate your operating conditions** across a variety of feedstocks

- **Real-Time Pipe Analysis:** Our proprietary, single-pass flow apparatus measures crude oil fouling directly inside the pipes at up to 500 °C
- **Component-Specific Insights:** We don't just test fluid; we evaluate the exact impact on your pipes, heaters, exchangers, columns, and chemical additives

Validate feedstocks and anti-foulant solutions with precise thermal and pressure data to maximize uptime and operational efficiency



Wyoming-based non-profit organization

- Created 1924 as a Bureau of Mines laboratory
- Non-profit 501(c)(3) since 1983
- Cooperating Agency with University of Wyoming



Mission

"Partnering to innovate, develop, and commercialize technologies using advanced sustainable chemistry, analysis, and innovative engineering, for carbon, natural resources, and wastes"



Website
QR Code

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INSTITUTE

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