About Us

Our Mission

To improve hazardous materials and transportation through a proactive and holistic approach that enables innovative research, extensive collaboration, and data-driven decision-making.

Our Vision

Empowering transformation by driving safety and transparency

Pictured from Left to Right: Joshua Davis, Physical Scientist; Andrew Leyder, Chief; Yolanda Y. Braxton, Director; Erica Wiener, Physical Scientist; Nina Vore, Program Analyst

Technology & Innovation Collaborators

We can only achieve our mission through the active participation of researchers, industry partners, and educational institutions—the sources of the ideas, innovation, and research that drive progress.

NC State University

Transportation Security Administration

ARIES Science & Technology

FRA

NanoSonic, Inc.

NEWPORT sensors

TDA RESEARCH

ESSPI ENERGY SAFETY STORAGE PRODUCTS INTERNATIONAL

Contact Us

hazmatresearch@dot.gov

U.S. Department of Transportation
250 Pipeline and Hazardous Materials Safety Administration

Office of Hazmat Safety

Research, Development, & Technology

Our Focus

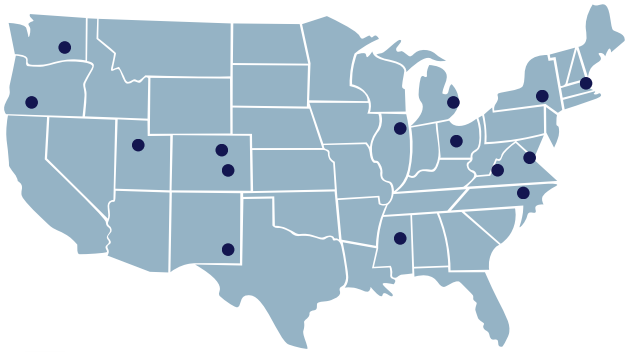
Our research areas reflect the most pressing safety challenges and emerging opportunities in HAZMAT transportation today.

- Efficient Safety Standards
- Innovative Packaging
- Risk Reduction for Emergency Response
- Safe Energy Storage Technologies

Why it Matters

There are over 3.3 billion tons of HAZMAT shipped per year. Our research helps ensure these critical products get to their final destinations safely today and into the future.

Our Reach



7 Small Business Partners

6 National Labs/Federal Partners

2 Academic Partners

Our research asks what if...

all battery shipments, everywhere could be monitored in real time?

HAZMAT placards could withstand any incident?

a HAZMAT leak is caught the moment it happens?

a responder knew exactly what HAZMAT was inside before arriving on scene?

What's **your** next what if?

Exhibits

Integrated System for Improved Hazardous Materials Response

Discover a field-ready spill treatment system that absorbs and eliminates hazmat on contact.
Aries Science & Technology, Inc.

Rail Tank Car Crashworthiness Impact Testing

Explore OHMS' partnership with FRA through full-scale crashworthiness testing and advanced modeling of cryogenic tank cars, pressurized tank cars, and cryogenic fuel tenders.
Federal Railroad Administration

Flame and Environment Resistant Multilayer Hazmat Placards

Learn about a durable HAZMAT placard that preserves critical visibility under extreme conditions.
Nanosonic, Inc.

Composite Metal Foams for Transportation Safety

Discover a lightweight material delivering greater impact absorption and thermal protection than solid metal.
North Carolina State University

In-Field Magnetometry for LiB State-of-Charge Determination

Explore tech that analyzes magnetic signatures to measures lithium-ion battery state of charge
TDA Research

Technology for Early Detection & Smart Containment of LiB Failure

Get energized with battery safety systems that can detect early failure signs, alert responders, and manages containment through smart hardware.
ESSPI

Real-Time Hazmat monitoring with wireless multi-sensor technology

Explore an intelligence platform that uses wireless multi-sensors and real-time analytics to detect and prevent dangerous shipment failures.
Newport Sensors

Battery Assessment and Recognition K9s (BARK)

Meet our canine heroes! This is a demo inspired by a collaborative effort to develop a canine program to identify undeclared or improperly labeled LiBs.
Transportation Safety Administration

Live Demo **Meet the researcher**