CHEMICAL SECTOR ANALYSIS CAPABILITY

MODEL OVERVIEW
The Chemical Sector provides significant value to the Nation’s economy and way of life, contributing $812 billion in U.S. economic activity while purifying the water we drink, creating lifesaving medicines, and producing the building blocks for countless goods. The National Infrastructure Simulation and Analysis Center (NISAC) has extensive capabilities to analyze and model the Chemical Sector and understand how disruptions to domestic chemical production can impact the Nation. Impacts considered include infrastructure interdependencies, supply shortages, changes in market conditions, and impact to the U.S. economy.

MODEL CHARACTERISTICS
- Detailed, rigorous set of Chemical Sector data, including chemical plant ownership, location, chemicals produced, methods of production, and production capacity for core chemical families researched by NISAC. Combined data enables analysts to link producers and consumers by chemical processes and economic principles to create chemical supply chains for modeling and analysis.
- Loki Chemical Network Model estimates worst-case impacts to chemical production, including direct and indirect impacts.
- N-ABLE agent-based supply chain model dynamically models plant-level interactions, providing rigorous analysis of both individual plant operations and national-level market conditions before, during, and after a disruption.
- Core chemical families researched by NISAC and incorporated into the data model for analysis include petrochemicals, industrial gases, industrial acids, agricultural chemicals, various inorganics, and chemicals important to semiconductor and pharmaceutical industries. Other Chemical Sector data can be integrated to create additional chemical supply chains for modeling and analysis.

QUESTIONS ADDRESSED
Using expertise, data, and analysis tools, OCIA can answer questions about the effects of an event on the Chemical Sector, including:
- What parts of the Chemical Sector will be impacted?
- What chemicals, plants, and complexes could be directly or indirectly impacted?
- What end-use products could be impacted?
- How long will each of these impacts last?

ABOUT OCIA
The Department of Homeland Security, National Protection and Programs Directorate’s (NPPD) Office of Cyber and Infrastructure Analysis (OCIA) manages NISAC, which is a Congressionally mandated center of excellence in modeling, simulation, and analysis of critical infrastructure.

CONTACTS
Office of Cyber and Infrastructure Analysis
National Protection and Programs Directorate

For more information, contact OCIA@hq.dhs.gov or visit our website: www.dhs.gov/office-cyber-infrastructure-analysis.