



UPDATED SURVEY REPORT

Supply Chain and Freight Transportation Problems Escalate for Chemical Manufacturers





Background

Chemical companies are some of the largest shippers across all modes of transportation. Nearly a billion metric tons of products were transported in 2021. And the industry's transportation future needs are only expected to increase as the chemical manufacturing in the U.S. grows.

With announced investments of more than \$200 billion and over 350 chemical manufacturing projects, more than 1 million additional chemical shipments are expected per year by 2030, including:

- 540,000 additional marine shipments
- 200,000 additional railcar shipments
- 600,000 additional truck shipments

Supply chain and freight transportation disruptions have caused considerable challenges for U.S. chemical producers and their customers. The American Chemistry Council (ACC) conducted a survey of chemical manufacturers doing business in the U.S. in the third quarter of 2021 to better understand the issues chemical manufacturers were facing.

The survey identified significant challenges for the efficient movement of freight across transportation modes and showed how these problems negatively impacted the operations of ACC members. ACC surveyed members again in March 2022 as a follow-up to the previous survey. Sixty-four chemical manufacturers participated in the survey. Findings from this survey are presented in this report.

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This report was prepared by ACC's Economics and Statistics Department. Questions about the survey and findings may be directed to Emily Sanchez, Director, Economics & Data Analytics (emily_sanchez@americanchemistry.com).

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Key Findings

- Supply chain and freight transportation disruptions have gotten worse compared to last year across all modes.
- These disruptions are harming U.S. chemical producers. Companies continued to report impacts to their U.S. manufacturing business. Every company (100%) reported having been negatively impacted by the ongoing supply chain and freight transportation disruptions.
- Among respondents, 97% of companies reported they needed to modify and/or curtail operations because of supply chain issues and/or transportation disruptions and delays.

Company Testimonials

“Our supply chain issues are universal and massive across North America, with no relief in sight.”

“Every shipper is in the same situation with disruptions, capacity, labor shortages, inflationary rates, etc.”

“All modes of transportation are undergoing heavy inflation and therefore we have had to provide...inflation adjustments to our customers.”

“Production planning is a nightmare! Customer satisfaction is decreasing! Will cause longer term customer loss if it continues... Causing significant employee frustration which is not helping employee retention!”

Ports & Ocean Shipping

55%

of chemical manufacturers report port related delays and congestion have gotten worse since 3Q 2021.

Major Issue: Port delays are from 4 to 6 weeks.

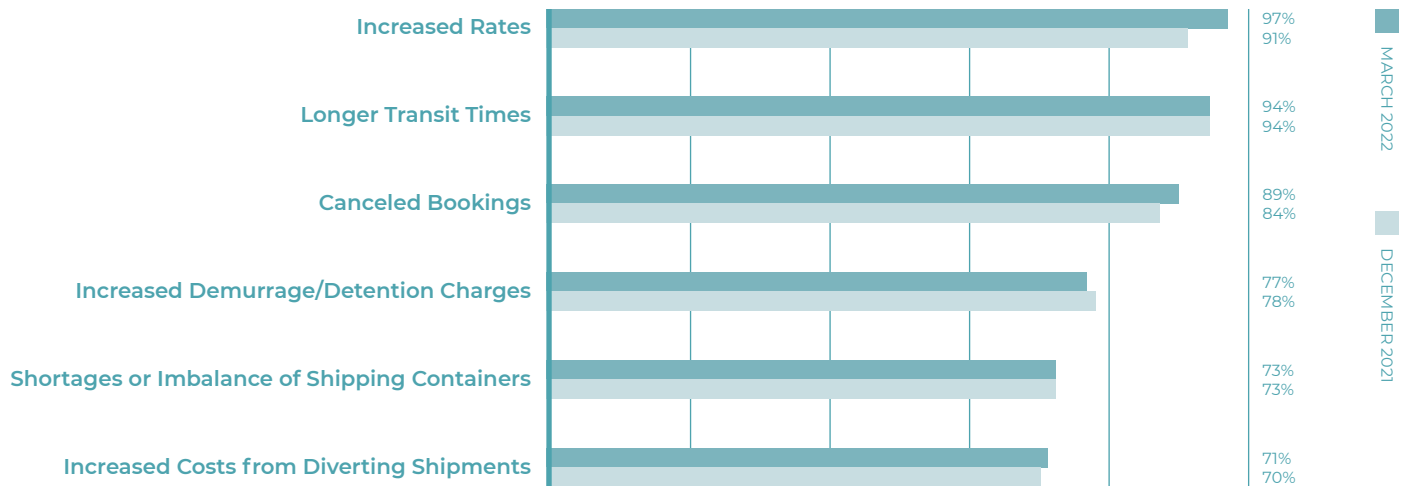
Overall, are port related delays and congestion getting worse?

	DEC '21	MAR '22
Worse	37%	↑ 55%
About the Same	55%	↓ 39%
Improving	8%	↓ 6%

Key Findings

- Chemical producers are increasingly reporting conditions at ports and in ocean shipping are worsening. 55% of companies reported, since the 3rd quarter of 2021, port related delays and congestion have gotten worse. 39% said conditions are about the same and 6% said they are improving. When companies were asked in 3rd quarter 2021, only 37% reported worsening conditions.
- As a result of delays and congestion at ports, nearly all companies which utilize ocean shipping to import and/or export materials and products faced increased rates (97%) and longer transit times (94%).
- Other business impacts in the first quarter of 2022, included canceled bookings (89%), increased demurrage/detention charges (77%), shortages or imbalance of shipping containers (73%), increased costs from diverting shipments to alternative ports (71%), higher costs due to rerouting (63%), shortages or imbalance of specialized containers (e.g., refrigerated containers, ISO tanks) (55%), and carriers restricting/rejecting specific hazmat commodities (47%).

Business Impacts Due to Delays & Congestion at the Ports



Company Testimonials

“Port congestion, blank sailings, and unpredictability of sailing schedules all result in challenges in shipping for our customers.”

“Port congestion requires more truck drivers. Obtaining more drivers is a challenge and has caused more than doubling of freight rates to meet this challenge.”

“In Containerized Shipping, we and our customers are experiencing unprecedented delays and lead-times, especially to Europe resulting in insufficient material to support our customer’s manufacturing operations.”

“Ocean freight (imports and exports) are horrendous. Increased rates for little or no service. Port congestion at all major ports along with carrier and chassis shortages make for long lead times to export or import.”

“Worsening port congestion (especially West Coast) is causing significant delays and additional cost to our export shipments.”

“Holding at least 10X more full containers on site vs. pre-COVID due to port congestion issues.”

Inland Waterways

21%

of chemical manufacturers report inland waterways transportation delays and congestion challenges have gotten worse since 3Q 2021.

Major Issue: Shipment times are on average 6 days longer.

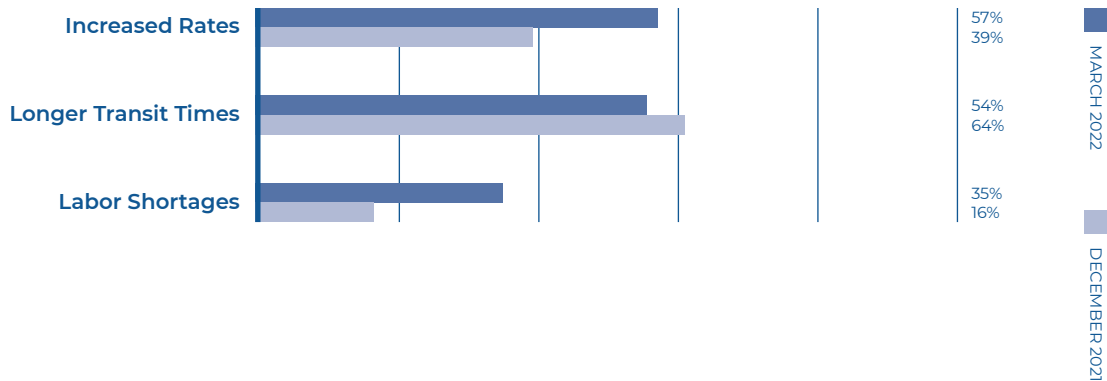
Overall, are inland waterways transportation related delays and congestion challenges getting worse?

	DEC '21	MAR '22
Worse	10%	↑ 21%
About the Same	77%	↓ 68%
Improving	13%	↓ 12%

Key Findings

- 58% of companies use inland waterways shipping. These companies generally reported fewer impacts than seen in other modes. However, more than half of those companies reported longer transit times and increased rates due to delays and congestion in inland waterways transportation are impacting their business. Labor shortages are also impacting business.
- Compared to 3rd quarter 2021, more companies are facing the challenges of increased rates and labor shortages in utilizing inland waterways.
- Most companies (68%) reported that waterways congestion and delays had not changed significantly. 12% reported that conditions were improving and 21% say they were getting worse in the first quarter of 2022. This is a deterioration from 3rd quarter when 10% said conditions were worse.

Business Impacts Due to Delays & Congestion in Inland Waterways Transportation



Company Testimonials

“Deterioration in on-time delivery impacting customer experience”

“Proactively utilized inland water ways to find alternative, less congested port locations.”

“Movement that requires trans-shipment are very compromised due to reduced schedules.”

“We do not normally have delays in this mode. It works in a very reliable manner. However, you have to be prepared and work around the river rehabilitation projects.”

Rail Transportation

39%

of chemical manufacturers report rail transportation related delays/ service challenges have gotten worse since 3Q 2021.

Major Issue: 75% of companies have switched cargo from rail to truck because of rate/service issues.

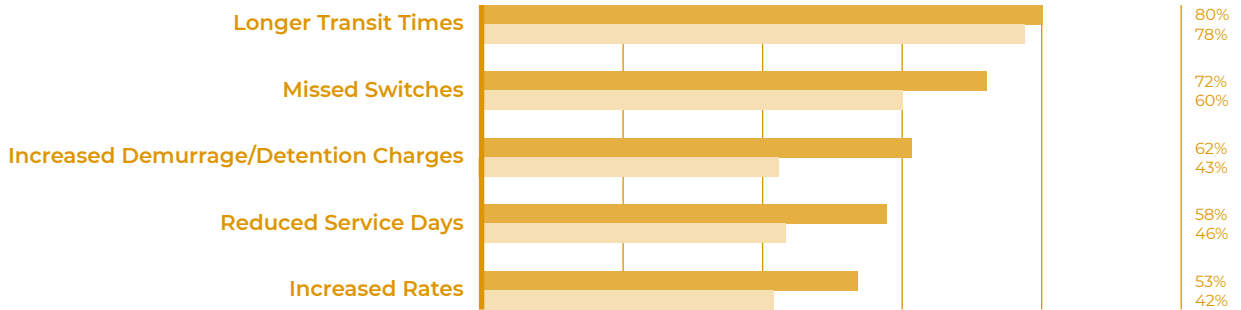
Overall, are rail transportation related delays/ service challenges getting worse?

	DEC '21	MAR '22
Worse	25%	↑ 39%
About the Same	64%	↓ 53%
Improving	11%	↓ 8%

Key Findings

- Companies that ship by rail are increasingly reporting that railroad delays and service challenges are worse. While 25% of companies reported conditions were getting worse in the 3rd quarter of 2021, when surveyed again in 1st quarter 2022, 39% of companies report conditions have gotten worse. Only 8% of companies reported that overall, since 3rd quarter of 2021, rail transportation related delays/service challenges have improved. 53% of companies say the situation is about the same.
- Rail users reported longer transit times (80%), missed switches (72%), increased demurrage charges (62%), reduced service days (58%), and higher rates (53%). Compared to 3rd quarter 2021, the percent of companies experiencing these impacts has increased across the board.
- 36% of companies have lost opportunities to increase rail shipments because of rate/service issues.

Business Impacts Due to Delays/Service Challenges in Rail Transportation



MARCH 2022
DECEMBER 2021

Company Testimonials

“Rail service delays due to inadequate staffing has led to production cuts at our manufacturing sites.”

“We have shifted modes due to poor rail service to address a number of issues, i.e. raw material inbound, customer needs outbound, lack of empties to fill, emergencies.”

“Inconsistent rail service has led [our company] to add additional railcars to support the same level of business.”

“Some other issues we’re facing in rail service include the failure of the railroad to pull unit trains due to power or labor shortage causes congestion at plants and results in further delayed shipments because we have no room to move cars. There’s been an increase in the number of derailments resulting in an increased number of destroyed cars.”

“Missed switches and congestion in rail yards have forced us to push more to trucks, which is already stressed. We’ve seen multiple instances where our plants had to slow down due to inventory too high while our customers had to shut down due to lack of product, all a result of logistics issues.”

Trucking

55%

of chemical manufacturers report truck transportation related delays and capacity constraints have gotten worse since 3Q 2021.

Major Issue: 1 million new truck drivers need to be hired in the next decade to keep up with demand.

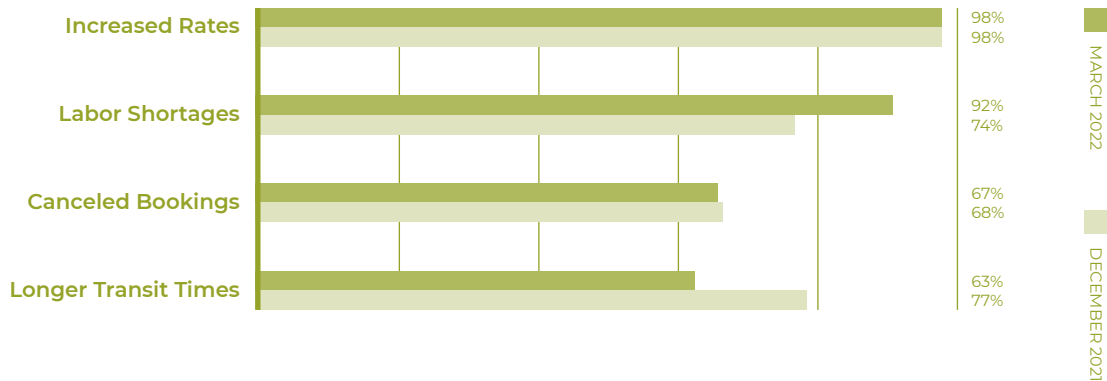
Overall, are truck transportation related delays and capacity constraints getting worse?

	DEC '21	MAR '22
Worse	42%	↑ 55%
About the Same	54%	↓ 38%
Improving	5%	↑ 8%

Key Findings

- Only 8% of companies reported that trucking delays and capacity constraints are improving. 55% (up from 42%) said conditions are getting worse and 38% (down from 54%) said they are about the same.
- There has been no relief in terms of increased rates. Nearly all companies (98%) continue to report increased trucking rates.
- Labor shortages are a growing challenge with 92% of companies reporting that the constraint has impacted their business. This compares to 74% of companies reporting the challenge in 2021.
- 63% of companies reported longer transit times, this is down from 77% of companies reported longer transit times at the end of 2021. One company explained, from their experience, the challenge was not longer transit, but longer time to secure a driver.
- 67% of companies reported additional delays for shipping hazardous materials.

Business Impacts Due to Delays & Capacity Constraints in Truck Transportation



Company Testimonials

“Canceled loads because of equipment/driver shortages.”

“U.S. trucking is still experiencing driver shortage and has somewhat transitioned into a dedicated driver market where we are seeing carriers dedicate drivers to long-term customers leaving no flex capacity to cover additional demands.”

The vaccine requirement for drivers in/out of Canada is causing customer shut down situations.”

“In trucking, there simply are not enough drivers. At times, we are not able to meet our customer trucking needs and when a surge of trucking is needed, we generally cannot secure capacity to cover it.”

“A new theme that we are now experiencing [in the first quarter of 2022] is that escalating fuel costs causing drivers to drop loads because they cannot cover the cost of fuel at the rate they agreed to.”



Detailed Survey Findings & Company Responses

Based on 64 responses. Numeric results represent percentage (%) of companies.

1. Overall, have the ongoing supply chain and freight transportation disruptions impacted your company's US chemicals manufacturing business?

Yes	100
No	0

2. Has your company needed to modify your operations because of supply chain issues and/or transportation disruptions and delays?

Yes	97
No	3

One company mentioned they added additional warehouse, packaging and drayage capacity and that they limited production at some of their plants due to delays in exports at USGC and East Coast ports, as well as railroad transit times. Another company explained they've had to leverage alternate supply chains to meet customer requirements.

3. Does your company utilize ocean shipping for importing materials?

Yes	94
No	6

4. Does your company utilize ocean shipping for exporting products?

Yes	91
No	9

62 companies (97% of total) utilize ocean shipping for importing and/or exporting products.

5. Overall, since the 3rd quarter 2021, have port related delays and congestion gotten worse?

Worse	55
Improving	6
About the same	39

6. How are delays and congestion at the ports impacting your business?

Longer transit times	94
Canceled bookings	89
Shortages or imbalance of shipping containers	73
Shortages or imbalance of specialized containers (e.g., refrigerated containers, ISO tanks)	55
Carriers restricting/rejecting specific hazmat commodities	47
Increased costs from diverting shipments to alternative ports	71
Increased demurrage/detention charges	77
Increased rates	97
Higher costs due to rerouting	63
Security/theft risks for loaded containers stored outside of ports	8

OTHER:

- Attrition
- Chassis availability, rolled cargo
- Constantly changing vessel schedules/ingate windows
- Deterioration in on-time delivery impacting customer experience
- Forced mode switches at higher costs and higher net working capital
- Inventory increasing at export warehouses
- Missed appointments and deteriorating condition of containers being sent for pick up

7. Does your company utilize inland waterways shipping?

Yes	58
No	42

8. How are delays and congestion in inland waterways transportation impacting your business? *Note: frequencies presented are a percent of companies using inland water transportation*

Longer transit times	54
Increased rates	57
Labor shortages	35

OTHER:

- Deterioration in on-time delivery impacting customer experience
- Movement that requires trans-shipment are very compromised due to reduced schedules.
- No Delays except for Waterway Infrastructure Outages associated with Major Lock Repairs.

- Proactively utilized inland water ways to find alternative, less congested port locations
- Scheduling delays
- We do not normally have delays in this mode. It works in a very reliable manner. However, you have to be prepared and work around the river rehabilitation projects.

9. Overall, since 3rd quarter of 2021, have inland waterways transportation related delays and congestion challenges gotten worse?

Worse	21
Improving	12
About the same	68

10. Does your company utilize rail shipping?

Yes	94
No	6

11. How are delays/service challenges in rail transportation impacting your business?

Longer transit times	80
Missed switches	72
Reduced service days	58
Increased demurrage/detention charges	62
Increased rates	53

OTHER:

- Congestion leads to use of trucks that are also not available
- Deterioration in on-time delivery impacting customer experience
- Forced mode switches at higher costs
- Forced mode switches at higher costs
- Longer lead time for rate request
- More embargos
- Overall, raw material delivery delays are impacting production schedule attainment and on time delivery to customer
- Small impact, we only use very limited rail service
- Uncertainty

12. Overall, since 3rd quarter of 2021, have rail transportation related delays/service challenges gotten worse?

Worse	39
Improving	8
About the same	53

13. Have you switched cargo from rail to truck because of rates/service issues?

Yes	75
No	25

13A. If so, were those shifts to address short term/ emergency situations or permanent shifts? Please explain.

- 39 (61%) companies provided data.
- Many companies have switched cargo from rail to truck because of rates/service issues. Most shifts have been for short term, emergency situations.

14. Did you give up opportunities to increase rail shipments because of rate/service issues?

Yes	36
No	64

15. Does your company utilize truck shipping?

Yes	100
No	0

16. How are delays and capacity constraints in truck transportation impacting your business?

Longer transit times	63
Additional delays or challenges shipping hazardous materials	67
Increased rates	98
Labor shortages	92

- OTHER:
- Asset shortages (bulk trucks,
 - Availability of drivers and equipment
 - Carrier availability
 - Deterioration in on-time delivery impacting customer experience
 - Forced mode switches and increased costs, including increased shipping in package
 - ISO container availability
 - Lack of availability and capacity in the market, lack of hazmat drivers, long lead times.
 - Last minute cancellations
 - Longer lead times to obtain bulk trucks
 - Missing commitments to customers
 - Missing some Customer Request Delivery Dates
 - Mode shifts due to strikes
 - Not longer transit, but longer time to secure a driver

17. Overall, since 3rd quarter of 2021, have truck transportation related delays and capacity constraints gotten worse?

Worse	55
Improving	8
About the same	38

