

A green line-art icon of a bar chart with three bars of increasing height, enclosed within a hexagonal frame. A green arrow points from the top of the third bar towards the right, pointing towards the main title.

PULSE *OF THE* **INDUSTRY**

AMERICAN COMPOSITES MANUFACTURERS ASSOCIATION

ACMA 1Q24 Pulse of the Industry Survey

Vault

Release: December 20, 2023
Compiled by Vault Consulting, LLC

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Summary of Key Findings

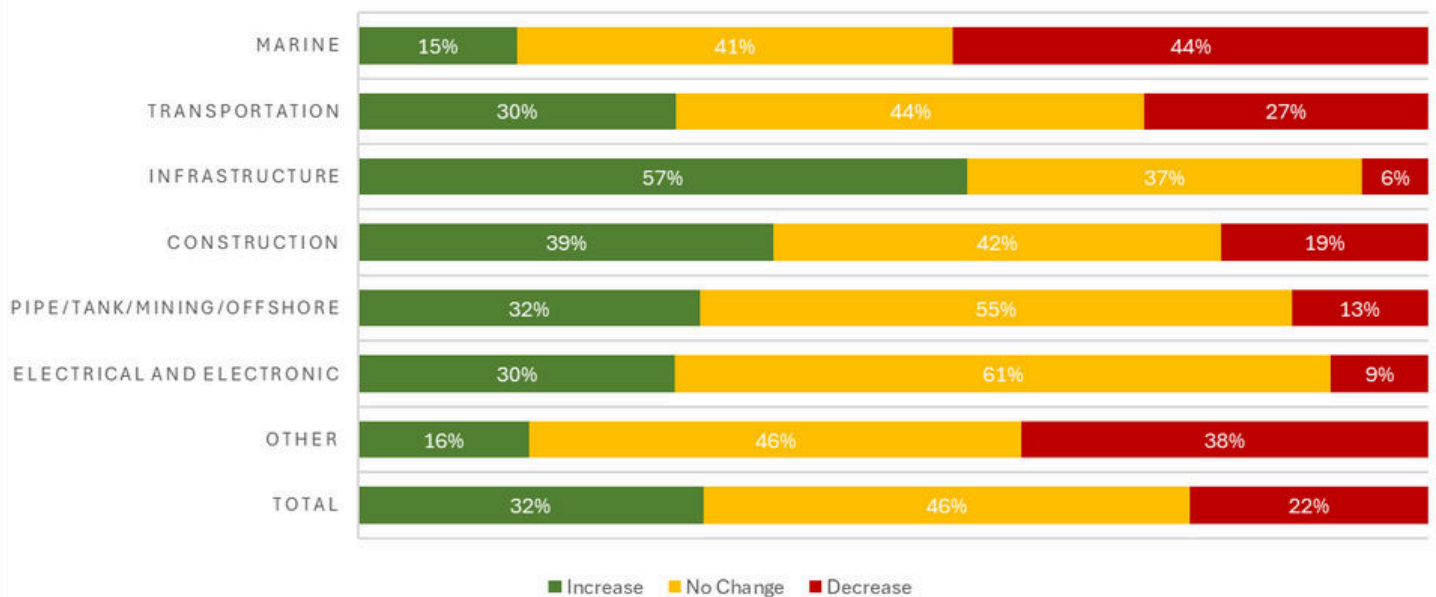
- Respondents report that customer demand for the Infrastructure market will continue to increase in 1Q24 compared to 4Q23, with 57% reporting so.
- In fact, the outlook for customer demand for the Infrastructure market is bright in 2024 as 63% of respondents indicate they believe it will increase relative to 2023.
- Total respondents report stability across the board with regard to lead time for all product inputs, while a majority believe that inventory levels for each product input is at the right amount.
- Among current topics supply chain disruptions and regulation of styrene has generated a lot of interest in 1Q24.

Total respondents report that supply chain disruptions and regulation of styrene are **extremely important** this quarter at 45% and 43%, respectively.

- 86% of respondents also feel hiring and training is still an extremely/very important issue for the industry.

Customer Demand in Q1 2024 Compared with Q4 2023

CUSTOMER DEMAND BY MARKET CURRENT QUARTER VS PREVIOUS QUARTER



Overall Market			
Market	Increase	No Change	Decrease
Marine	15%	41%	44%
Transportation	30%	44%	27%
Infrastructure	57%	37%	6%
Construction	39%	42%	19%
Pipe/Tank/Mining/Offshore	32%	55%	13%
Electrical and Electronic	30%	61%	9%
Other	16%	46%	38%
Total	32%	46%	22%

Company Count
49
58
57
59
41
37
43
87

Manufacturer			
Market	Increase	No Change	Decrease
Marine	20%	40%	40%
Transportation	27%	45%	27%
Infrastructure	48%	45%	6%
Construction	35%	47%	18%
Pipe/Tank/Mining/Offshore	32%	58%	11%
Electrical and Electronic	17%	67%	17%
Other	14%	48%	38%
Total	30%	49%	22%

Company Count
25
33
33
34
19
18
21
53

Supplier / Distributor			
Market	Increase	No Change	Decrease
Marine	8%	38%	54%
Transportation	28%	44%	28%
Infrastructure	63%	33%	4%
Construction	32%	44%	24%
Pipe/Tank/Mining/Offshore	32%	55%	14%
Electrical and Electronic	37%	58%	5%
Other	14%	41%	45%
Total	30%	44%	25%

Company Count
24
25
24
25
22
19
22
26

Affiliate			
Market	Increase	No Change	Decrease
Marine	20%	60%	20%
Transportation	50%	33%	17%
Infrastructure	75%	13%	13%
Construction	75%	13%	13%
Pipe/Tank/Mining/Offshore	33%	50%	17%
Electrical and Electronic	43%	57%	0%
Other	29%	57%	14%
Total	49%	38%	13%

Company Count
5
6
8
8
6
7
7
8

Small: 1 - 10 Employees			
Market	Increase	No Change	Decrease
Marine	0%	75%	25%
Transportation	80%	20%	0%
Infrastructure	71%	29%	0%
Construction	57%	29%	14%
Pipe/Tank/Mining/Offshore	40%	40%	20%
Electrical and Electronic	33%	67%	0%
Other	0%	75%	25%
Total	45%	45%	11%

Company Count
4
5
7
7
5
6
4
8

Medium: 11 - 100 Employees			
Market	Increase	No Change	Decrease
Marine	27%	45%	27%
Transportation	43%	36%	21%
Infrastructure	47%	47%	6%
Construction	40%	40%	20%
Pipe/Tank/Mining/Offshore	27%	45%	27%
Electrical and Electronic	38%	63%	0%
Other	45%	36%	18%
Total	39%	44%	17%

Company Count
11
14
17
15
11
8
11
25

Large: 101+ Employees			
Market	Increase	No Change	Decrease
Marine	13%	36%	51%
Transportation	20%	49%	31%
Infrastructure	59%	34%	7%
Construction	36%	44%	20%
Pipe/Tank/Mining/Offshore	32%	61%	6%
Electrical and Electronic	27%	60%	13%
Other	9%	46%	46%
Total	28%	46%	26%

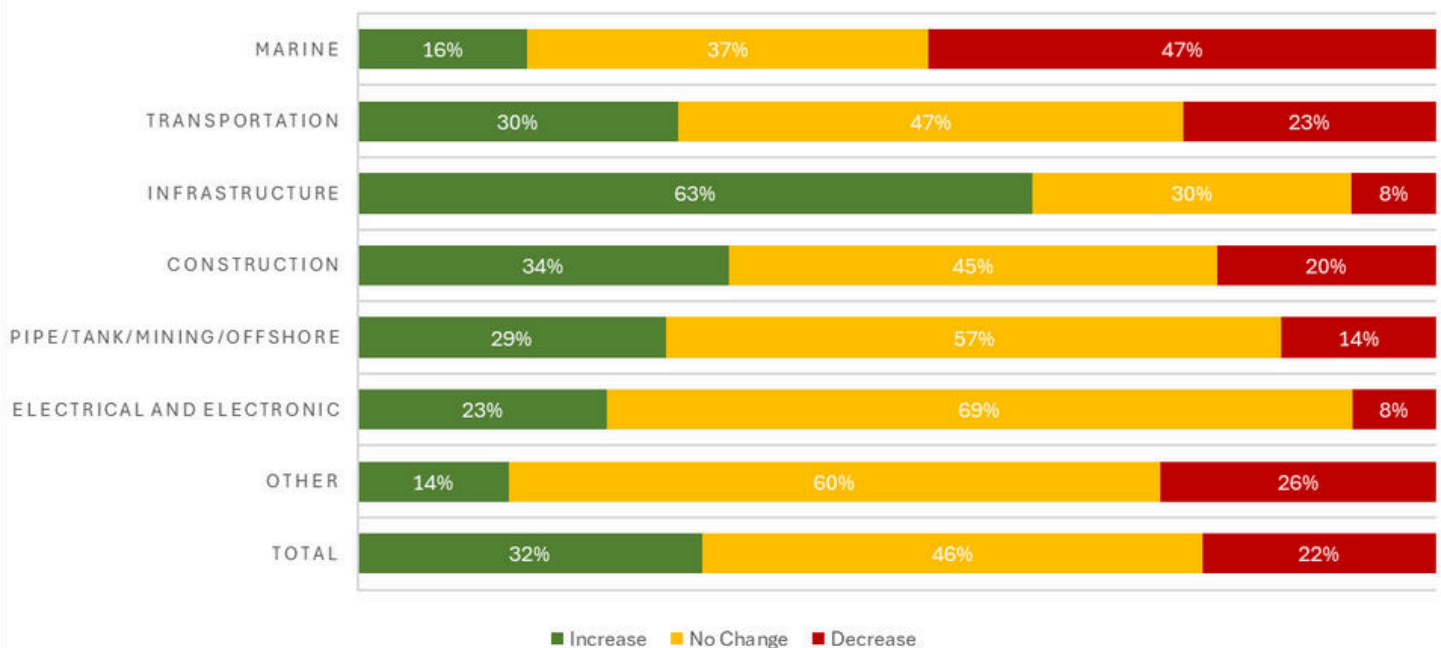
Company Count
39
45
41
45
31
30
35
54

What is the outlook for customer demand in North America in the current quarter compared to the prior quarter for the following markets? Please only answer for markets for which you have knowledge.

*Darker shading represents the higher responses by market segment. Shading does not represent statistical significance.

Customer Demand in North America Year Over Year

CUSTOMER DEMAND BY MARKET - 2024 VS 2023



Overall Market

Market	Increase	No Change	Decrease
Marine	16%	37%	47%
Transportation	30%	47%	23%
Infrastructure	63%	30%	8%
Construction	34%	45%	20%
Pipe/Tank/Mining/Offshore	29%	57%	14%
Electrical and Electronic	23%	69%	8%
Other	14%	60%	26%
Total	32%	46%	22%

Company Count

45
58
56
56
37
33
37
87

Manufacturer

Market	Increase	No Change	Decrease
Marine	23%	41%	36%
Transportation	31%	50%	19%
Infrastructure	56%	34%	9%
Construction	32%	48%	19%
Pipe/Tank/Mining/Offshore	25%	56%	19%
Electrical and Electronic	20%	60%	20%
Other	18%	59%	24%
Total	32%	48%	20%

Company Count

22
32
32
31
16
15
17
53

Supplier / Distributor

Market	Increase	No Change	Decrease
Marine	4%	30%	65%
Transportation	23%	50%	27%
Infrastructure	67%	29%	4%
Construction	32%	44%	24%
Pipe/Tank/Mining/Offshore	29%	62%	10%
Electrical and Electronic	22%	78%	0%
Other	10%	60%	30%
Total	27%	49%	24%

Company Count

23
26
24
25
21
18
20
26

Affiliate

Market	Increase	No Change	Decrease
Marine	33%	50%	17%
Transportation	50%	17%	33%
Infrastructure	75%	13%	13%
Construction	50%	38%	13%
Pipe/Tank/Mining/Offshore	40%	40%	20%
Electrical and Electronic	33%	67%	0%
Other	17%	67%	17%
Total	44%	40%	16%

Company Count

6
6
8
8
5
6
6
8

Small: 1 - 10 Employees

Market	Increase	No Change	Decrease
Marine	0%	80%	20%
Transportation	50%	33%	17%
Infrastructure	71%	29%	0%
Construction	50%	33%	17%
Pipe/Tank/Mining/Offshore	50%	25%	25%
Electrical and Electronic	33%	67%	0%
Other	0%	75%	25%
Total	39%	47%	13%

Company Count
5
6
7
6
4
6
4
8

Medium: 11 - 100 Employees

Market	Increase	No Change	Decrease
Marine	56%	33%	11%
Transportation	46%	38%	15%
Infrastructure	50%	44%	6%
Construction	27%	53%	20%
Pipe/Tank/Mining/Offshore	30%	50%	20%
Electrical and Electronic	29%	71%	0%
Other	56%	33%	11%
Total	42%	46%	12%

Company Count
9
13
18
15
10
7
9
25

Large: 101+ Employees

Market	Increase	No Change	Decrease
Marine	8%	32%	59%
Transportation	22%	51%	27%
Infrastructure	67%	23%	10%
Construction	35%	44%	21%
Pipe/Tank/Mining/Offshore	25%	64%	11%
Electrical and Electronic	19%	69%	12%
Other	3%	67%	30%
Total	27%	48%	25%

Company Count
37
45
39
43
28
26
30
54

Survey Question: What is the outlook for customer demand in North America in 2024 compared to 2023 in the following markets? Please only answer for markets for which you have knowledge.

*Darker shading represents the higher responses by market segment. Shading does not represent statistical significance.

Current Product Lead Time

CURRENT LEAD TIME BY PRODUCT

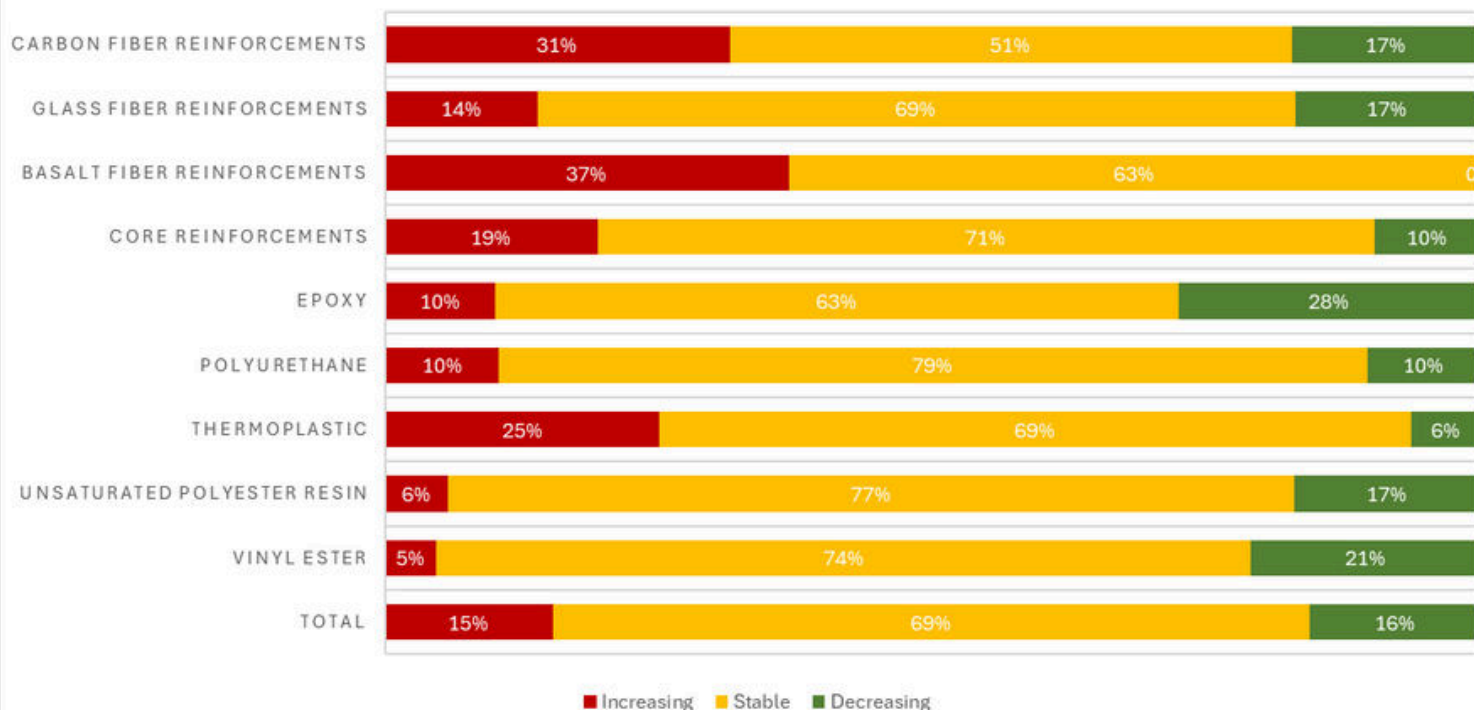


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Overall			
Product	Increasing	Stable	Decreasing
Carbon Fiber Reinforcements	31%	51%	17%
Glass Fiber Reinforcements	14%	69%	17%
Basalt Fiber Reinforcements	37%	63%	0%
Core Reinforcements	19%	71%	10%
Epoxy	10%	63%	28%
Polyurethane	10%	79%	10%
Thermoplastic	25%	69%	6%
Unsaturated Polyester Resin	6%	77%	17%
Vinyl Ester	5%	74%	21%
Total	15%	69%	16%

Company Count
29
59
14
25
35
24
26
48
38
75

Manufacturer			
Product	Increasing	Stable	Decreasing
Carbon Fiber Reinforcements	14%	64%	21%
Glass Fiber Reinforcements	12%	76%	12%
Basalt Fiber Reinforcements	33%	67%	0%
Core Reinforcements	14%	71%	14%
Epoxy	5%	75%	20%
Polyurethane	14%	86%	0%
Thermoplastic	24%	71%	6%
Unsaturated Polyester Resin	3%	79%	17%
Vinyl Ester	0%	80%	20%
Total	11%	76%	14%

Company Count
14
42
6
14
20
14
17
29
20
47

Supplier / Distributor			
Product	Increasing	Stable	Decreasing
Carbon Fiber Reinforcements	33%	53%	13%
Glass Fiber Reinforcements	6%	59%	35%
Basalt Fiber Reinforcements	38%	63%	0%
Core Reinforcements	9%	82%	9%
Epoxy	7%	53%	40%
Polyurethane	0%	80%	20%
Thermoplastic	22%	67%	11%
Unsaturated Polyester Resin	5%	79%	16%
Vinyl Ester	6%	72%	22%
Total	12%	67%	20%

Company Count
15
17
8
11
15
10
9
19
18
22

Affiliate			
Product	Increasing	Stable	Decreasing
Carbon Fiber Reinforcements	67%	17%	17%
Glass Fiber Reinforcements	50%	50%	0%
Basalt Fiber Reinforcements	40%	60%	0%
Core Reinforcements	50%	50%	0%
Epoxy	40%	40%	20%
Polyurethane	20%	60%	20%
Thermoplastic	33%	67%	0%
Unsaturated Polyester Resin	20%	60%	20%
Vinyl Ester	20%	60%	20%
Total	39%	51%	10%

Company Count
6
6
5
6
5
5
6
5
5
6

Small: 1 - 10 Employees			
Product	Increasing	Stable	Decreasing
Carbon Fiber Reinforcements	33%	33%	33%
Glass Fiber Reinforcements	20%	80%	0%
Basalt Fiber Reinforcements	67%	33%	0%
Core Reinforcements	33%	67%	0%
Epoxy	25%	50%	25%
Polyurethane	25%	50%	25%
Thermoplastic	20%	80%	0%
Unsaturated Polyester Resin	20%	60%	20%
Vinyl Ester	0%	75%	25%
Total	25%	61%	14%

Company Count
3
5
3
3
4
4
5
5
4
6

Medium: 11-100 Employees			
Product	Increasing	Stable	Decreasing
Carbon Fiber Reinforcements	36%	45%	18%
Glass Fiber Reinforcements	14%	76%	10%
Basalt Fiber Reinforcements	20%	80%	0%
Core Reinforcements	30%	70%	0%
Epoxy	17%	75%	8%
Polyurethane	0%	100%	0%
Thermoplastic	25%	75%	0%
Unsaturated Polyester Resin	0%	85%	15%
Vinyl Ester	9%	82%	9%
Total	16%	76%	8%

Company Count
11
21
5
10
12
7
8
13
11
22

Large: 101+ Employees			
Product	Increasing	Stable	Decreasing
Carbon Fiber Reinforcements	29%	57%	14%
Glass Fiber Reinforcements	13%	64%	23%
Basalt Fiber Reinforcements	36%	64%	0%
Core Reinforcements	11%	72%	17%
Epoxy	4%	58%	38%
Polyurethane	11%	78%	11%
Thermoplastic	26%	63%	11%
Unsaturated Polyester Resin	6%	77%	17%
Vinyl Ester	4%	71%	25%
Total	13%	68%	19%

Company Count
21
39
11
18
24
18
19
35
28
47

Survey Question: What is the current lead time for the following inputs? Please only answer for products for which you have knowledge.

*Darker shading represents the higher responses by market segment. Shading does not represent statistical significance.

Current Inventory

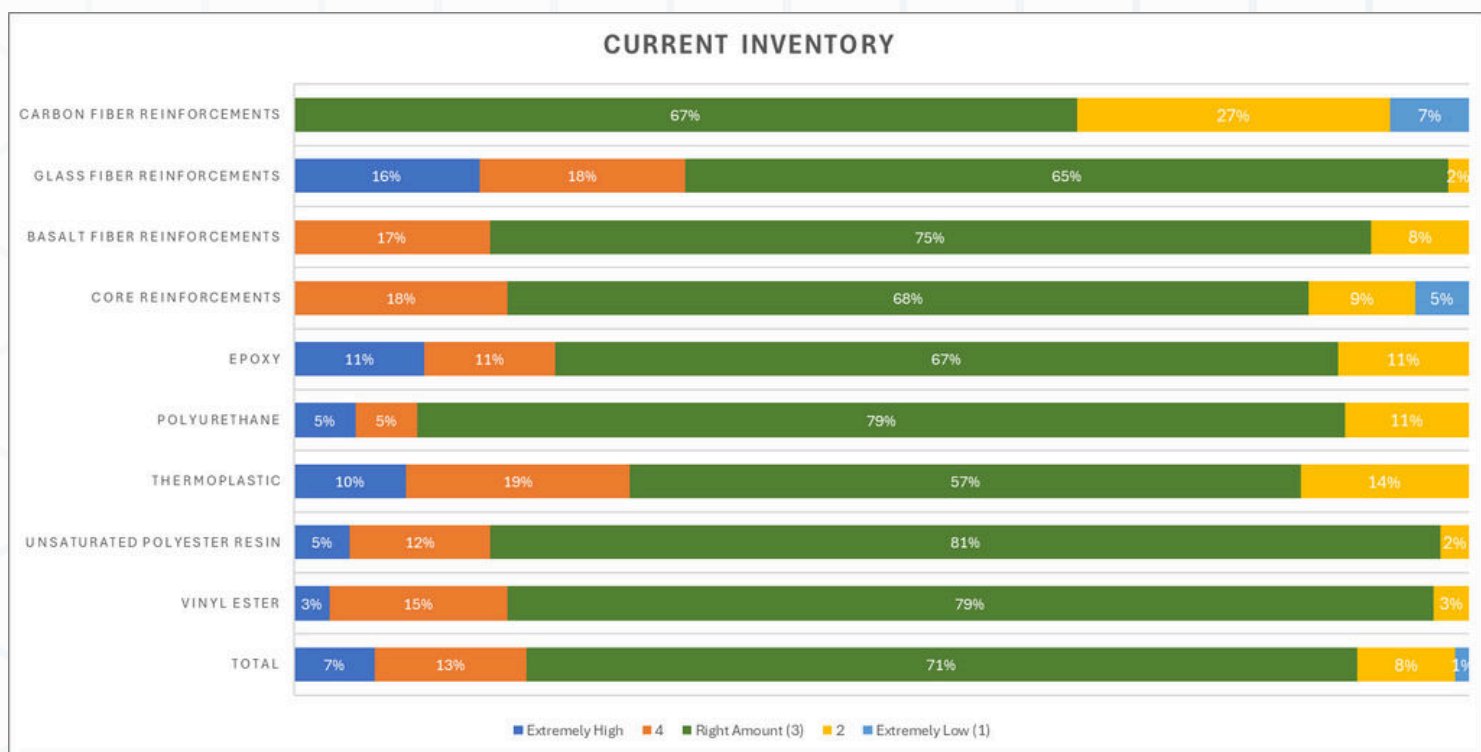


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Overall					
Product	Extremely High	4	Right Amount (3)	2	Extremely Low (1)
Carbon Fiber Reinforcements	0%	0%	67%	27%	7%
Glass Fiber Reinforcements	16%	18%	65%	2%	0%
Basalt Fiber Reinforcements	0%	17%	75%	8%	0%
Core Reinforcements	0%	18%	68%	9%	5%
Epoxy	11%	11%	67%	11%	0%
Polyurethane	5%	5%	79%	11%	0%
Thermoplastic	10%	19%	57%	14%	0%
Unsaturated Polyester Resin	5%	12%	81%	2%	0%
Vinyl Ester	3%	15%	79%	3%	0%
Total	7%	13%	71%	8%	1%

*Total based on Manufacturer and Supplier / Distributor responses only.

Company Count
30
57
12
22
27
19
21
42
33
67

Manufacturer					
Product	Extremely High	4	Right Amount (3)	2	Extremely Low (1)
Carbon Fiber Reinforcements	0%	0%	64%	29%	7%
Glass Fiber Reinforcements	5%	18%	75%	3%	0%
Basalt Fiber Reinforcements	0%	33%	67%	0%	0%
Core Reinforcements	0%	10%	60%	20%	10%
Epoxy	0%	8%	69%	23%	0%
Polyurethane	0%	0%	82%	18%	0%
Thermoplastic	8%	23%	46%	23%	0%
Unsaturated Polyester Resin	4%	8%	83%	4%	0%
Vinyl Ester	0%	19%	81%	0%	0%
Total	3%	13%	72%	11%	1%

Company Count
14
40
6
10
13
11
13
24
16
45

Supplier / Distributor					
Product	Extremely High	4	Right Amount (3)	2	Extremely Low (1)
Carbon Fiber Reinforcements	0%	0%	69%	25%	6%
Glass Fiber Reinforcements	41%	18%	41%	0%	0%
Basalt Fiber Reinforcements	0%	0%	83%	17%	0%
Core Reinforcements	0%	25%	75%	0%	0%
Epoxy	21%	14%	64%	0%	0%
Polyurethane	13%	13%	75%	0%	0%
Thermoplastic	13%	13%	75%	0%	0%
Unsaturated Polyester Resin	6%	17%	78%	0%	0%
Vinyl Ester	6%	12%	76%	6%	0%
Total	12%	13%	69%	5%	1%

Company Count
16
17
6
12
14
8
8
18
17
22

Affiliate					
Product	Extremely High	4	Right Amount (3)	2	Extremely Low (1)
Carbon Fiber Reinforcements	17%	0%	17%	33%	33%
Glass Fiber Reinforcements	17%	17%	33%	33%	0%
Basalt Fiber Reinforcements	0%	25%	25%	25%	25%
Core Reinforcements	0%	20%	20%	60%	0%
Epoxy	0%	25%	50%	0%	25%
Polyurethane	0%	50%	25%	0%	25%
Thermoplastic	20%	0%	40%	20%	20%
Unsaturated Polyester Resin	0%	0%	80%	0%	20%
Vinyl Ester	0%	0%	80%	0%	20%
Total	7%	14%	41%	20%	18%

Company Count
6
6
4
5
4
4
5
5
5
6

Small: 1 - 10 Employees					
Product	Extremely High	4	Right Amount (3)	2	Extremely Low (1)
Carbon Fiber Reinforcements	0%	0%	20%	40%	40%
Glass Fiber Reinforcements	0%	20%	60%	20%	0%
Basalt Fiber Reinforcements	0%	0%	33%	33%	33%
Core Reinforcements	0%	0%	33%	67%	0%
Epoxy	0%	0%	75%	0%	25%
Polyurethane	0%	25%	50%	0%	25%
Thermoplastic	0%	0%	75%	0%	25%
Unsaturated Polyester Resin	0%	0%	75%	0%	25%
Vinyl Ester	0%	0%	75%	0%	25%
Total	0%	6%	56%	17%	22%

Company Count
5
5
3
3
4
4
4
4
4
5

Medium: 11 - 100 Employees					
Product	Extremely High	4	Right Amount (3)	2	Extremely Low (1)
Carbon Fiber Reinforcements	9%	0%	55%	36%	0%
Glass Fiber Reinforcements	10%	10%	75%	5%	0%
Basalt Fiber Reinforcements	0%	20%	80%	0%	0%
Core Reinforcements	0%	13%	50%	25%	13%
Epoxy	0%	13%	75%	13%	0%
Polyurethane	0%	20%	40%	40%	0%
Thermoplastic	17%	0%	33%	50%	0%
Unsaturated Polyester Resin	0%	0%	100%	0%	0%
Vinyl Ester	0%	13%	88%	0%	0%
Total	5%	9%	69%	16%	1%

Company Count
11
20
5
8
8
5
6
10
8
22

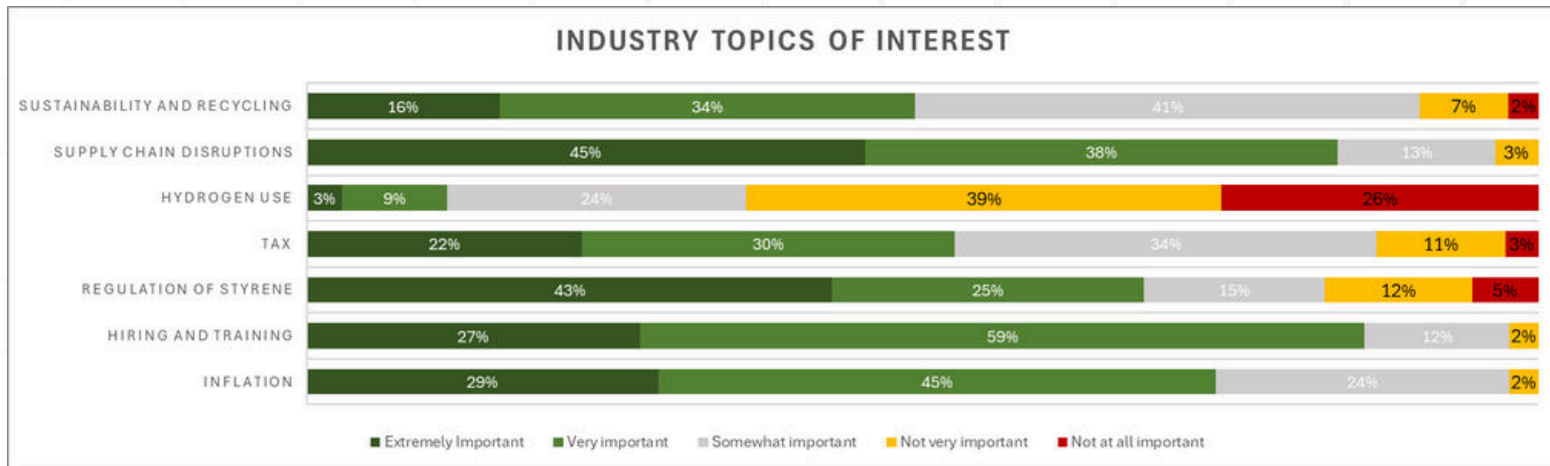
Large: 101+ Employees					
Product	Extremely High	4	Right Amount (3)	2	Extremely Low (1)
Carbon Fiber Reinforcements	0%	0%	70%	20%	10%
Glass Fiber Reinforcements	21%	21%	55%	3%	0%
Basalt Fiber Reinforcements	0%	25%	63%	13%	0%
Core Reinforcements	0%	25%	69%	6%	0%
Epoxy	16%	16%	58%	11%	0%
Polyurethane	7%	7%	86%	0%	0%
Thermoplastic	13%	25%	56%	6%	0%
Unsaturated Polyester Resin	6%	15%	76%	3%	0%
Vinyl Ester	4%	15%	77%	4%	0%
Total	9%	16%	67%	6%	1%

Company Count
20
38
8
16
19
14
16
33
26
46

Using a scale of 1 to 5 where “1” means extremely low inventory, “3” means the right amount, and “5” means extremely high inventory, how do you view inventory for the following inputs? Please only answer on products for which you have knowledge.

*Darker shading represents the higher responses by market segment. Shading does not represent statistical significance.

Industry Topics of Interest



Top Two Topics of Interest

Topic	Percent Very or Extremely Important
Hiring and Training	21.04%
Supply Chain Disruptions	20.75%

*Top Two Topics calculated as the highest percentage of very or extremely important topics out of all very or extremely important responses.

Table continued on next page

Overall					
Topic	Extremely Important	Very important	Somewhat important	Not very important	Not at all important
Sustainability and Recycling	16%	34%	41%	7%	2%
Supply Chain Disruptions	45%	38%	13%	3%	0%
Hydrogen Use	3%	9%	24%	39%	26%
Tax	22%	30%	34%	11%	3%
Regulation of Styrene	43%	25%	15%	12%	5%
Hiring and Training	27%	59%	12%	2%	0%
Inflation	29%	45%	24%	2%	0%

Company Count
83
86
70
76
75
85
84

Manufacturer					
Topic	Extremely Important	Very important	Somewhat important	Not very important	Not at all important
Sustainability and Recycling	10%	39%	43%	4%	4%
Supply Chain Disruptions	44%	38%	13%	4%	0%
Hydrogen Use	0%	8%	24%	39%	29%
Tax	24%	29%	36%	11%	0%
Regulation of Styrene	38%	24%	14%	14%	10%
Hiring and Training	33%	56%	12%	0%	0%
Inflation	32%	44%	22%	2%	0%

Company Count
49
52
38
45
42
52
50

Supplier / Distributor					
Topic	Extremely Important	Very important	Somewhat important	Not very important	Not at all important
Sustainability and Recycling	19%	23%	46%	12%	0%
Supply Chain Disruptions	38%	46%	12%	4%	0%
Hydrogen Use	4%	8%	25%	42%	21%
Tax	13%	35%	39%	13%	0%
Regulation of Styrene	44%	28%	20%	8%	0%
Hiring and Training	12%	68%	12%	8%	0%
Inflation	23%	46%	31%	0%	0%

Company Count
26
26
24
23
25
25
26

Affiliate					
Topic	Extremely Important	Very important	Somewhat important	Not very important	Not at all important
Sustainability and Recycling	38%	38%	13%	13%	0%
Supply Chain Disruptions	75%	13%	13%	0%	0%
Hydrogen Use	13%	13%	25%	25%	25%
Tax	38%	25%	13%	0%	25%
Regulation of Styrene	63%	25%	0%	13%	0%
Hiring and Training	38%	50%	13%	0%	0%
Inflation	25%	50%	13%	13%	0%

Company Count
8
8
8
8
8
8
8

Small: 1 - 10 Employees					
Topic	Extremely Important	Very important	Somewhat important	Not very important	Not at all important
Sustainability and Recycling	25%	50%	25%	0%	0%
Supply Chain Disruptions	63%	25%	13%	0%	0%
Hydrogen Use	13%	13%	13%	38%	25%
Tax	25%	25%	25%	0%	25%
Regulation of Styrene	50%	25%	0%	13%	13%
Hiring and Training	25%	50%	25%	0%	0%
Inflation	25%	50%	13%	13%	0%

Company Count
8
8
8
8
8
8
8

Medium: 11 - 100 Employees					
Topic	Extremely Important	Very important	Somewhat important	Not very important	Not at all important
Sustainability and Recycling	0%	33%	38%	24%	5%
Supply Chain Disruptions	39%	43%	9%	9%	0%
Hydrogen Use	0%	6%	24%	41%	29%
Tax	21%	47%	26%	5%	0%
Regulation of Styrene	29%	41%	12%	6%	12%
Hiring and Training	18%	68%	14%	0%	0%
Inflation	26%	43%	30%	0%	0%

Company Count
21
23
17
19
17
22
23

Large: 101+ Employees					
Topic	Extremely Important	Very important	Somewhat important	Not very important	Not at all important
Sustainability and Recycling	20%	31%	44%	2%	2%
Supply Chain Disruptions	45%	38%	15%	2%	0%
Hydrogen Use	2%	9%	27%	38%	24%
Tax	22%	24%	39%	14%	0%
Regulation of Styrene	46%	20%	18%	14%	2%
Hiring and Training	31%	56%	9%	4%	0%
Inflation	30%	45%	23%	2%	0%

Company Count
54
55
45
49
50
55
53

Survey Question: Based on what you have read and heard, how important do you consider each of the following issues to your company?

*Darker shading represents the higher responses by market segment. Shading does not represent statistical significance.

Other Topics of Interest	
4Q23	1Q24
Regulation in general	EGS
Carbon Economy	Union Contracts
Retaining employees	Availability of federal funding
Govt. funding of infrastructure	Infrastructure development
Health & Safety	Interest Rates & Steel prices
Forex	

Based on what you have seen or heard, how important do you consider each of the issues to your company? If other, please specify

Background:

Purpose:

The purpose of the survey is to gauge perceptions about how the composites industry is performing over time. Published data from the survey will allow members to assess how their company's markets and inputs are trending relative to the overall composites industry; and enable ACMA to identify hot topics in the composites industry for which the association should be engaged on behalf of its members.

ACMA will also use the survey to gauge the perceived value of association membership and identify any strengths and areas for improvement.

Survey Objectives:

To assess perceptions of end market segments over the next quarter and next 9 months

To determine the size of composites inputs inventory

To identify issues that members perceive to be important in the composites industry

Survey Methodology:

The survey is conducted on a quarterly basis among members of ACMA.

The survey takes approximately 5 minutes to complete and remain in the field for roughly two weeks.

Vault Consulting will distribute the survey each quarter and will be responsible for collecting, aggregating, and reporting results each quarter. Reports will be published roughly two weeks after fieldwork closes.

Sample sizes for the current quarter were as follows:

Total Respondents 89

Manufacturers 55

Supplier/Distributor 26

Affiliates 8

Data collection was conducted between 12/1/2023-12/15/2023.

For more information on this survey or how to participate please contact Paige Patterson at ppatterson@acmanet.org