

## Silica Fume Certificate of Analysis

Plant: BECANCOUR

**Date:** 02-15-2023

**Customer Name:** Becancour Plant - Undensified - January 2023 Monthly Average CPA

**Product:** Silica Fume

**Shipment Reference:** N/A


**Quantity Shipped:** N/A

**Lot #:** N/A

Parameters	Unit	ASTM C1240 Specification		CSA A3000-18 Specification		Results
		Min	Max	Min	Max	
SiO <sub>2</sub>	%	85	-	85	-	94,66
SO <sub>3</sub>	%	-	-	-	1	0,34
Cl	%	-	-	-	-	0,09
Total Alkalis as Na <sub>2</sub> O eq	%	Report		-	-	0,64
Moisture	%	-	3	-	3	0,46
Loss on Ignition	%	-	6	-	10	2,88
pH		-	-	-	-	6,73
Retained on 325 sieve (+45µm)	%	-	10	-	10	2,21
Density (specific gravity)	g/m <sup>3</sup>	Report		-	-	2,16
Undensified - Bulk Density	kg/m <sup>3</sup>	Report		-	-	135
BET Specific Surface Area	m <sup>2</sup> /g	15	-	-	-	19,8
Accelerated Pozzolanic Activity Index	%	105	-	105	-	122,6
Tendency to Entrap Air (per CSA)		-	-	No Visible Layer of Foam		No Visible Layer of Foam

Prepared by Becancour - QC Department

Concrete Form 101E - Canadian (Eng)  
CSA & ASTM C-1240

  
Renee Cossette, chemist  
Quality Manager

# Silica Fume

## Certificate of Analysis

Plant: BECANCOUR

**Date:** 03-09-2023

**Customer Name:** Becancour Plant - Undensified - February 2023 Monthly Average CPA

**Product:** Silica Fume

**Shipment Reference:** N/A


**Quantity Shipped:** N/A

**Lot #:** N/A

Parameters	Unit	ASTM C1240 Specification		CSA A3000-18 Specification		Results
		Min	Max	Min	Max	
SiO <sub>2</sub>	%	85	-	85	-	95.05
SO <sub>3</sub>	%	-	-	-	1	0.29
Cl	%	-	-	-	-	0.08
Total Alkalis as Na <sub>2</sub> O eq	%	Report		-	-	0.56
Moisture	%	-	3	-	3	0.39
Loss on Ignition	%	-	6	-	10	2.61
pH		-	-	-	-	6.67
Retained on 325 sieve (+45µm)	%	-	10	-	10	2.33
Density (specific gravity)	g/m <sup>3</sup>	Report		-	-	2.16
Undensified - Bulk Density	kg/m <sup>3</sup>	Report		-	-	159
BET Specific Surface Area	m <sup>2</sup> /g	15	-	-	-	19.8
Accelerated Pozzolanic Activity Index	%	105	-	105	-	122.6
Tendency to Entrap Air (per CSA)		-	-	No Visible Layer of Foam		No Visible Layer of Foam

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Quality Manager

## Silica Fume Certificate of Analysis

Plant: BECANCOUR

**Date:** 04-11-2023

**Customer Name:** Becancour Plant - Undensified - March 2023 Monthly Average CPA

**Product:** Silica Fume

**Shipment Reference:** N/A


**Quantity Shipped:** N/A

**Lot #:** N/A

Parameters	Unit	ASTM C1240 Specification		CSA A3000-18 Specification		Results
		Min	Max	Min	Max	
SiO <sub>2</sub>	%	85	-	85	-	95.13
SO <sub>3</sub>	%	-	-	-	1	0.28
Cl	%	-	-	-	-	0.04
Total Alkalis as Na <sub>2</sub> O eq	%	Report		-	-	0.55
Moisture	%	-	3	-	3	0.42
Loss on Ignition	%	-	6	-	10	2.55
pH		-	-	-	-	7.14
Retained on 325 sieve (+45µm)	%	-	10	-	10	2.55
Density (specific gravity)	g/m <sup>3</sup>	Report		-	-	2.16
Undensified - Bulk Density	kg/m <sup>3</sup>	Report		-	-	193
BET Specific Surface Area	m <sup>2</sup> /g	15	-	-	-	19.8
Accelerated Pozzolanic Activity Index	%	105	-	105	-	121.8
Tendency to Entrap Air (per CSA)		-	-	No Visible Layer of Foam		No Visible Layer of Foam

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# Silica Fume

## Certificate of Analysis

Plant: BECANCOUR

**Date:** 05-11-2023

**Customer Name:** Becancour Plant - Undensified - April 2023 Monthly Average CPA

**Product:** Silica Fume

**Shipment Reference:** N/A


**Quantity Shipped:** N/A

**Lot #:** N/A

Parameters	Unit	ASTM C1240 Specification		CSA A3000-18 Specification		Results
		Min	Max	Min	Max	
SiO <sub>2</sub>	%	85	-	85	-	94.72
SO <sub>3</sub>	%	-	-	-	1	0.29
Cl	%	-	-	-	-	0.06
Total Alkalis as Na <sub>2</sub> O eq	%	Report		-	-	0.63
Moisture	%	-	3	-	3	0.44
Loss on Ignition	%	-	6	-	10	2.58
pH		-	-	-	-	7.11
Retained on 325 sieve (+45µm)	%	-	10	-	10	2.64
Density (specific gravity)	g/m <sup>3</sup>	Report		-	-	2.16
Undensified - Bulk Density	kg/m <sup>3</sup>	Report		-	-	167
BET Specific Surface Area	m <sup>2</sup> /g	15	-	-	-	19.8
Accelerated Pozzolanic Activity Index	%	105	-	105	-	121.8
Tendency to Entrap Air (per CSA)		-	-	No Visible Layer of Foam		No Visible Layer of Foam

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## Silica Fume

### Certificate of Analysis

Plant: BECANCOUR

**Date:** 06-05-2023

**Customer Name:** Becancour Plant - Undensified - May 2023 Monthly Average CPA

**Product:** Silica Fume

**Shipment Reference:** N/A


**Quantity Shipped:** N/A

**Lot #:** N/A

Parameters	Unit	ASTM C1240 Specification		CSA A3000-18 Specification		Results
		Min	Max	Min	Max	
SiO <sub>2</sub>	%	85	-	85	-	95.21
SO <sub>3</sub>	%	-	-	-	1	0.28
Cl	%	-	-	-	-	0.05
Total Alkalis as Na <sub>2</sub> O eq	%	Report		-	-	0.62
Moisture	%	-	3	-	3	0.47
Loss on Ignition	%	-	6	-	10	2.28
pH		-	-	-	-	7.23
Retained on 325 sieve (+45µm)	%	-	10	-	10	2.23
Density (specific gravity)	g/m <sup>3</sup>	Report		-	-	2.16
Undensified - Bulk Density	kg/m <sup>3</sup>	Report		-	-	188
BET Specific Surface Area	m <sup>2</sup> /g	15	-	-	-	19.8
Accelerated Pozzolanic Activity Index	%	105	-	105	-	121.8
Tendency to Entrap Air (per CSA)		-	-	No Visible Layer of Foam		No Visible Layer of Foam

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# Silica Fume

## Certificate of Analysis

Plant: BECANCOUR

**Date:** 07-11-2023

**Customer Name:** Becancour Plant - Undensified - June 2023 Monthly Average CPA

**Product:** Silica Fume

**Shipment Reference:** N/A


**Quantity Shipped:** N/A

**Lot #:** N/A

Parameters	Unit	ASTM C1240 Specification		CSA A3000-18 Specification		Results
		Min	Max	Min	Max	
SiO <sub>2</sub>	%	85	-	85	-	94.53
SO <sub>3</sub>	%	-	-	-	1	0.31
Cl	%	-	-	-	-	0.05
Total Alkalis as Na <sub>2</sub> O eq	%	Report		-	-	0.65
Moisture	%	-	3	-	3	0.63
Loss on Ignition	%	-	6	-	10	2.91
pH		-	-	-	-	7.72
Retained on 325 sieve (+45µm)	%	-	10	-	10	2.48
Density (specific gravity)	g/m <sup>3</sup>	Report		-	-	2.16
Undensified - Bulk Density	kg/m <sup>3</sup>	Report		-	-	160
BET Specific Surface Area	m <sup>2</sup> /g	15	-	-	-	19.8
Accelerated Pozzolanic Activity Index	%	105	-	105	-	121.8
Tendency to Entrap Air (per CSA)		-	-	No Visible Layer of Foam		No Visible Layer of Foam

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# Silica Fume

## Certificate of Analysis

Plant: BECANCOUR

**Date:** 08-22-2023

**Customer Name:** Becancour Plant - Undensified - July 2023 Monthly Average CPA

**Product:** Silica Fume

**Shipment Reference:** N/A


**Quantity Shipped:** N/A

**Lot #:** N/A

Parameters	Unit	ASTM C1240 Specification		CSA A3000-18 Specification		Results
		Min	Max	Min	Max	
SiO <sub>2</sub>	%	85	-	85	-	94.99
SO <sub>3</sub>	%	-	-	-	1	0.19
Cl	%	-	-	-	-	0.04
Total Alkalis as Na <sub>2</sub> O eq	%	Report		-	-	0.56
Moisture	%	-	3	-	3	0.65
Loss on Ignition	%	-	6	-	10	2.28
pH		-	-	-	-	7.64
Retained on 325 sieve (+45µm)	%	-	10	-	10	1.70
Density (specific gravity)	g/m <sup>3</sup>	Report		-	-	2.16
Undensified - Bulk Density	kg/m <sup>3</sup>	Report		-	-	177
BET Specific Surface Area	m <sup>2</sup> /g	15	-	-	-	19.8
Accelerated Pozzolanic Activity Index	%	105	-	105	-	121.8
Tendency to Entrap Air (per CSA)		-	-	No Visible Layer of Foam		No Visible Layer of Foam

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# Silica Fume

## Certificate of Analysis

Plant: BECANCOUR

**Date:** 09-09-2023

**Customer Name:** Becancour Plant - Undensified - August 2023 Monthly Average CPA

**Product:** Silica Fume

**Shipment Reference:** N/A


**Quantity Shipped:** N/A

**Lot #:** N/A

Parameters	Unit	ASTM C1240 Specification		CSA A3000-18 Specification		Results
		Min	Max	Min	Max	
SiO <sub>2</sub>	%	85	-	85	-	94.49
SO <sub>3</sub>	%	-	-	-	1	0.34
Cl	%	-	-	-	-	0.07
Total Alkalis as Na <sub>2</sub> O eq	%	Report		-	-	0.73
Moisture	%	-	3	-	3	0.75
Loss on Ignition	%	-	6	-	10	2.48
pH		-	-	-	-	7.87
Retained on 325 sieve (+45µm)	%	-	10	-	10	1.59
Density (specific gravity)	g/m <sup>3</sup>	Report		-	-	2.16
Undensified - Bulk Density	kg/m <sup>3</sup>	Report		-	-	148
BET Specific Surface Area	m <sup>2</sup> /g	15	-	-	-	19.9
Accelerated Pozzolanic Activity Index	%	105	-	105	-	120.4
Tendency to Entrap Air (per CSA)		-	-	No Visible Layer of Foam		No Visible Layer of Foam

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## Silica Fume

### Certificate of Analysis

Plant: BECANCOUR

**Date:** 10-11-2023

**Customer Name:** Becancour Plant - Undensified - September 2023 Monthly Average CPA

**Product:** Silica Fume

**Shipment Reference:** N/A


**Quantity Shipped:** N/A

**Lot #:** N/A

Parameters	Unit	ASTM C1240 Specification		CSA A3000-18 Specification		Results
		Min	Max	Min	Max	
SiO <sub>2</sub>	%	85	-	85	-	94.56
SO <sub>3</sub>	%	-	-	-	1	0.27
Cl	%	-	-	-	-	0.06
Total Alkalis as Na <sub>2</sub> O eq	%	Report		-	-	0.68
Moisture	%	-	3	-	3	0.62
Loss on Ignition	%	-	6	-	10	2.70
pH		-	-	-	-	7.83
Retained on 325 sieve (+45µm)	%	-	10	-	10	2.10
Density (specific gravity)	g/m <sup>3</sup>	Report		-	-	2.16
Undensified - Bulk Density	kg/m <sup>3</sup>	Report		-	-	144
BET Specific Surface Area	m <sup>2</sup> /g	15	-	-	-	19.9
Accelerated Pozzolanic Activity Index	%	105	-	105	-	120.4
Tendency to Entrap Air (per CSA)		-	-	No Visible Layer of Foam		No Visible Layer of Foam

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# Silica Fume

## Certificate of Analysis

Plant: BECANCOUR

**Date:** 11-09-2023

**Customer Name:** Becancour Plant - Undensified - October 2023 Monthly Average CPA

**Product:** Silica Fume

**Shipment Reference:** N/A


**Quantity Shipped:** N/A

**Lot #:** N/A

Parameters	Unit	ASTM C1240 Specification		CSA A3000-18 Specification		Results
		Min	Max	Min	Max	
SiO <sub>2</sub>	%	85	-	85	-	94.56
SO <sub>3</sub>	%	-	-	-	1	0.39
Cl	%	-	-	-	-	0.07
Total Alkalis as Na <sub>2</sub> O eq	%	Report		-	-	0.74
Moisture	%	-	3	-	3	0.59
Loss on Ignition	%	-	6	-	10	2.65
pH		-	-	-	-	7.48
Retained on 325 sieve (+45µm)	%	-	10	-	10	1.96
Density (specific gravity)	g/m <sup>3</sup>	Report		-	-	2.16
Undensified - Bulk Density	kg/m <sup>3</sup>	Report		-	-	136
BET Specific Surface Area	m <sup>2</sup> /g	15	-	-	-	19.9
Accelerated Pozzolanic Activity Index	%	105	-	105	-	120.4
Tendency to Entrap Air (per CSA)		-	-	No Visible Layer of Foam		No Visible Layer of Foam

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# Silica Fume

## Certificate of Analysis

Plant: BECANCOUR

**Date:** 12-14-2023

**Customer Name:** Becancour Plant - Undensified - November 2023 Monthly Average CPA

**Product:** Silica Fume

**Shipment Reference:** N/A


**Quantity Shipped:** N/A

**Lot #:** N/A

Parameters	Unit	ASTM C1240 Specification		CSA A3000-18 Specification		Results
		Min	Max	Min	Max	
SiO <sub>2</sub>	%	85	-	85	-	95.17
SO <sub>3</sub>	%	-	-	-	1	0.27
Cl	%	-	-	-	-	0.03
Total Alkalis as Na <sub>2</sub> O eq	%	Report		-	-	0.50
Moisture	%	-	3	-	3	0.41
Loss on Ignition	%	-	6	-	10	2.31
pH		-	-	-	-	7.36
Retained on 325 sieve (+45µm)	%	-	10	-	10	2.08
Density (specific gravity)	g/m <sup>3</sup>	Report		-	-	2.16
Undensified - Bulk Density	kg/m <sup>3</sup>	Report		-	-	228
BET Specific Surface Area	m <sup>2</sup> /g	15	-	-	-	19.5
Accelerated Pozzolanic Activity Index	%	105	-	105	-	121.1
Tendency to Entrap Air (per CSA)		-	-	No Visible Layer of Foam		No Visible Layer of Foam

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## Silica Fume Certificate of Analysis

Plant: BECANCOUR

**Date:** 01-09-2024

**Customer Name:** Becancour Plant - Undensified - December 2023 Monthly Average CPA

**Product:** Silica Fume

**Shipment Reference:** N/A


**Quantity Shipped:** N/A

**Lot #:** N/A

Parameters	Unit	ASTM C1240 Specification		CSA A3000-18 Specification		Results
		Min	Max	Min	Max	
SiO <sub>2</sub>	%	85	-	85	-	94.70
SO <sub>3</sub>	%	-	-	-	1	0.16
Cl	%	-	-	-	-	0.05
Total Alkalis as Na <sub>2</sub> O eq	%	Report		-	-	0.60
Moisture	%	-	3	-	3	0.39
Loss on Ignition	%	-	6	-	10	2.92
pH		-	-	-	-	7.25
Retained on 325 sieve (+45µm)	%	-	10	-	10	3.93
Density (specific gravity)	g/m <sup>3</sup>	Report		-	-	2.16
Undensified - Bulk Density	kg/m <sup>3</sup>	Report		-	-	152
BET Specific Surface Area	m <sup>2</sup> /g	15	-	-	-	19.5
Accelerated Pozzolanic Activity Index	%	105	-	105	-	120.3
Tendency to Entrap Air (per CSA)		-	-	No Visible Layer of Foam		No Visible Layer of Foam

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