

# HEXION INC. BANKRUPTCY CASE STUDY

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CreditRiskMonitor's warning of Hexion Inc.'s ("Hexion") bankruptcy risk was determined by a combination of factors:

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## MONTHLY AVERAGE FRISK® SCORE

CreditRiskMonitor's FRISK® score had been warning of financial stress at Hexion Inc. for more than a year.

We issued a special High Risk Report, dated November 29, 2018, as conditions continued to deteriorate and become more troubling.

The company ultimately filed for bankruptcy on April 1, 2019.

Business Name	2018	2018	2018	2018	2018	2018	2018	2018	2018	2019	2019	2019	2019
Dusilless Name	APR	MAY	JUN	JUL	AUG	SEP	ОСТ	NOV	DEC	JAN	FEB	MAR	APR
Hexion Inc.	1	1	1	1	1	1	1	1	1	1	1	1	1

BANKRUPT!

The FRISK® score is 96% accurate\* in predicting the risk of corporate failure/bankruptcy over a 12-month horizon.

All FRISK® scores are recalculated every night for each subsequent 12-month period.

	EDICK® P	Probability of bankruptcy within 12 months						
	FRISK	From	То					
Best	10	0.00%	0.12%					
	9	0.12%	0.27%					
	8	0.27%	0.34%					
	7	0.34%	0.55%					
	6	0.55%	0.87%					
	5	0.87%	1.40%					
	4	1.40%	2.10%					
	3	2.10%	4.00%					
	2	4.00%	9.99%					
Worst	1	9.99%	50.00%					

While the percentage risk of bankruptcy varies at each FRISK® score, 96% of public companies that eventually go bankrupt enter the FRISK® "red zone" prior to filing. A FRISK® score of 5 or less is an important warning sign.

<sup>\*</sup> FRISK® score accuracy of 96% is based on backtesting of U.S. public companies; results may vary by country.

### THE FRISK® SCORE COMPONENTS

At the core of the CreditRiskMonitor process is our 96% accurate FRISK® score, which indicates a company's level of financial stress on a scale of 1 to 10, based on the probability of bankruptcy over a 12-month horizon. When available, the FRISK® score incorporates a number of powerful risk indicators including:

A "Merton" type model using stock market capitalization and volatility

Financial ratios, including those used in the Altman Z"-Score Model Bond agency ratings from Moody's, Fitch, DBRS, & Morningstar

# Crowdsourced CreditRiskMonitor Usage Data

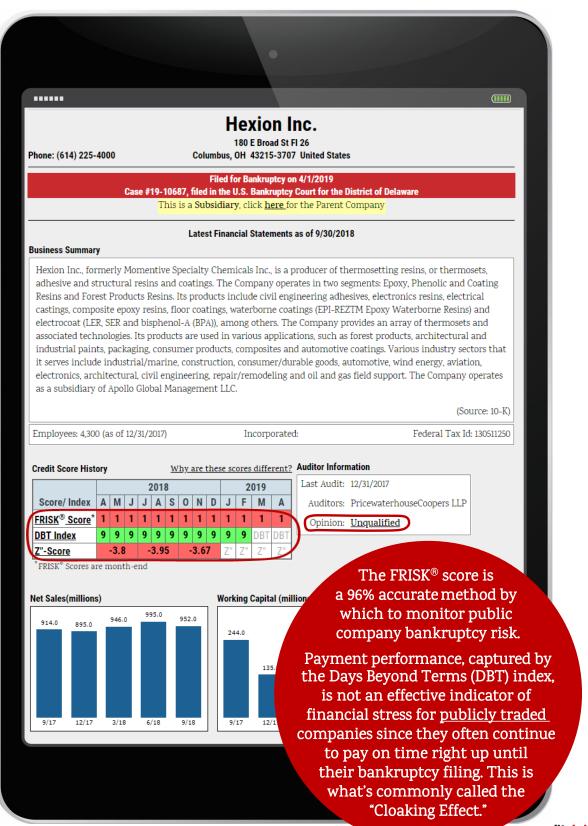
<u>Crowdsourcing</u> has enhanced the accuracy and timeliness of the FRISK® score. We collect and analyze data patterns from thousands of CreditRiskMonitor subscribers, including professionals from more than 35% of the Fortune 1000 and other large corporations worldwide.

The crowdsourcing advantage is even more powerful in our FRISK® score since many of the professionals who use our service are credit managers:

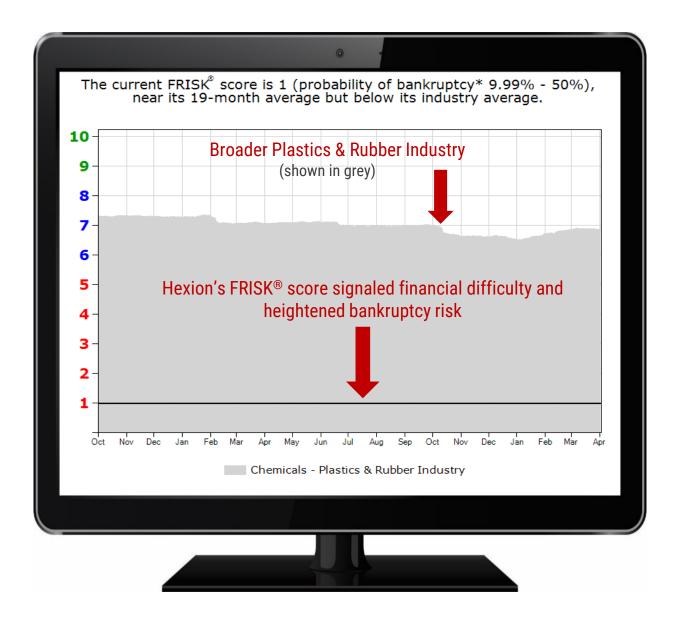
- Credit managers control one of the largest sources of working capital going into a company
- They are not held to the same "Fair Disclosure" restrictions that prevent nondisclosed information sharing on public companies
- Credit managers use a variety of non-public information sources such as their own company's management and sales representatives to be alerted to concerns in a public company's performance
- It is commonly known credit managers confidentially share information with other credit managers, thus collectively, their behavior helps to provide advanced insight to financial problems in public companies

Read more in Credit Research Foundation's quarterly journal article, "Assessing Public Company Financial Risk by Crowdsourcing the Research of Credit Professionals"

### **COMPANY REPORT DETAIL**

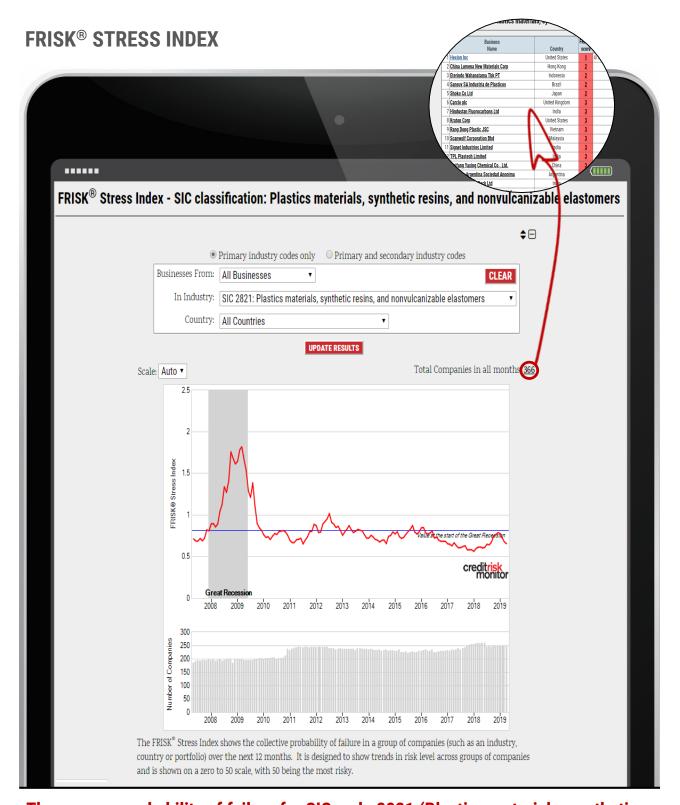


### FRISK® DEEP DIVE



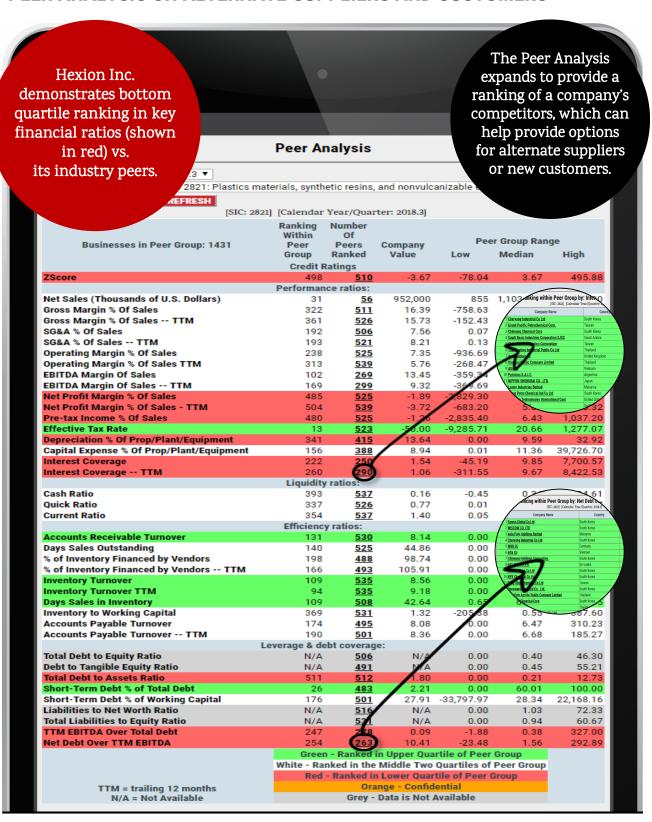
The FRISK® score relative to the broader Plastics & Rubber industry raised an additional red flag signaling heightened risk relative to peers, as well...

MAKING IMMEDIATE ATTENTION REQUIRED.



The average probability of failure for SIC code 2821 (Plastics materials, synthetic resins, and nonvulcanizable elastomers) reflects an industry subsector with low risk. But, Hexion had continued to struggle, as evidenced by its FRISK® score of 1.

#### PEER ANALYSIS ON ALTERNATE SUPPLIERS AND CUSTOMERS



# **QUARTERLY PERFORMANCE RATIOS**

Net losses in each of the last five fiscal quarters

Poor interest coverage ratio & negative free cash flow

#### Performance Ratios - Sequential Quarters

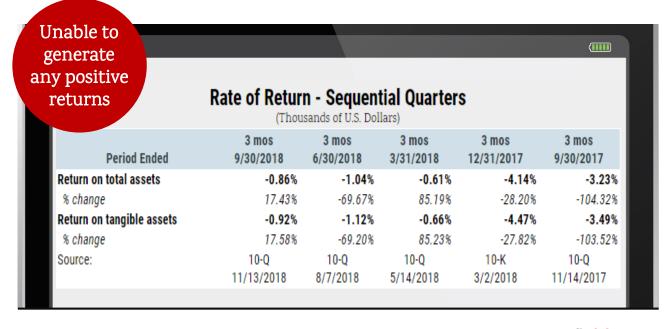
Performa	nce Ratios (Thousands	<ul> <li>Sequent of U.S. Dollars)</li> </ul>	ial Quarte	rs	
Period Ended	3 mos 9/30/2018	3 mos 6/30/2018	3 mos 3/31/2018	3 mos 12/31/2017	3 mos 9/30/2017
Net Sales \$	\$952,000	\$995,000	\$946,000	\$895,000	\$914,000
% change	-4.32%	5.18%	5.70%	-2.08%	0.22%
Gross Margin \$	\$156,000	\$166,000	\$157,000	\$117,000	\$117,000
% change	-6.02%	5.73%	34.19%	0.00%	-12.69%
% of sales	16.39%	16.68%	16.60%	13.07%	12.80%
change as % of incremental sales	n/m	18.37%	78.43%	n/m	-850.00%
SG&A \$	\$72,000	\$77,000	\$82,000	\$80,000	\$75,000
% change	-6.49%	-6.10%	2.50%	6.67%	0.00%
% of sales	7.56%	7.74%	8.67%	8.94%	8.21%
change as % of incremental sales	n/m	-10.20%	3.92%	n/m	0.00%
Operating margin \$	\$70,000	\$73,000	\$76,000	(\$1,000)	\$18,000
% change	-4.11%	-3.95%	7,700.00%	-105.56%	-55.00%
% of sales	7.35%	7.34%	8.03%	-0.11%	1.97%
change as % of incremental sales	n/m	-6.12%	150.98%	n/m	-1,100.00%
EBITDA \$	\$128,000	\$93,000	\$107,000	\$25,000	\$77,000
% change	37.63%	-13.08%	328.00%	-67.53%	5.48%
% of sales	13.45%	9.35%	11.31%	2.79%	8.42%
change as % of incremental sales	n/m	-28.57%	160.78%	n/m	200.00%
EBIT \$	\$71,000	\$65,000	\$77,000	(\$5,000)	\$21,000
% change	9.23%	-15.58%	1,640.00%	-123.81%	-53.33%
% of sales	7.46%	6.53%	8.14%	-0.56%	2.30%
change as % of incremental sales	n/m	-24.49%	160.78%	n/m	-1,200.00%
Pre-tax income \$	(\$12,000)	(\$19,000)	(\$6,000)	(\$87,000)	(\$61,000)
% change	36.84%	-216.67%	93.10%	-42.62%	-64.86%
% of sales	-1.26%	-1.91%	-0.63%	-9.72%	-6.67%
change as % of incremental sales	n/m	-26.53%	158.82%	n/m	-1,200.00%
Net income (loss) \$	(\$18,000)	(\$22,000)	(\$13,000)	(\$88,000)	(\$70,000)
% change	18.18%	-69.23%	85.23%	-25.71%	-105.88%
% of sales	-1.89%	-2.21%	-1.37%	-9.83%	-7.66%
change as % of incremental sales	n/m	-18.37%	147.06%	n/m	-1,800.00%
Tax expense \$	\$6,000	\$3,000	\$8,000	\$4,000	\$9,000
Effective tax rate	-50.00%	-15.79%	-133.33%	-4.60%	-14.75%
Depreciation expense \$	\$29,000	\$28,000	\$30,000	\$30,000	\$29,000
% of sales	3.05%	2.81%	3.17%	3.35%	3.17%
% of capital expenses	152.63%	155.56%	120.00%	96.77%	100.00%
% of PP&E, net (annualized)	13.64%	12.74%	13.16%	13.03%	12.66%
Capital expenditures \$	\$19,000	\$18,000	\$25,000	\$31,000	\$29,000
% change	5.56%	-28.00%	-19.35%	6.90%	7.41%
% of PP&E, net (annualized)	8.94%	8.19%	10.96%	13.46%	12.66%
% of working capital (annualized)	26.95%	26.13%	47.28%	65.44%	45.67%
Interest coverage ratio	1.54 39.30%	1.11	1.29 322.83%	<b>0.30</b> -67.53%	<b>0.94</b> 5.48%
% change		-14.13%			
Free cash flow \$ % change	(\$26,000) -213.04%	\$23,000 121.30%	(\$108,000) -614.29%	\$21,000 153.85%	(\$39,000) 62.50%
% change Source:	-213.04% 10-Q	10-0	-074.29% 10-0	10-K	10-0
Source.	11/13/2018	8/7/2018	5/14/2018	3/2/2018	10-Q 11/14/2017
	11/10/2010	0///2010	0/14/2010	0/2/2010	11/14/2017

# **QUARTERLY LEVERAGE RATIOS**

Substantial negative tangible net worth in each of the last five quarters Leverage Ratios - Sequential Quarters (Thousands of U.S. Dollars) Period Ended 9/30/2018 6/30/2018 3/31/2018 12/31/2017 9/30/2017 Total debt \$ \$3,794,000 \$3,760,000 \$3,769,000 \$3,709,000 \$3,733,000 % change 0.90% -0.24% 1.62% 0.92% -0.64% Stockholders' equity \$ (\$2,801,000) (\$2,777,000) (\$2,739,000) (\$2,741,000) (\$2,659,000) % change -0.86%-1.39%0.07% -3.08% -2.31% Tangible net worth \$ (\$2,939,000) (\$2,919,000) (\$2,817,000) (\$2,886,000) (\$2,895,000) % change -0.69% -1.14% 0.31% -2.77% -1.66% \$2,097,000 Total assets \$ \$2,107,000 \$2,145,000 \$2,156,000 \$2,086,000 -2.75% 2.29% -2.74% % change 1.01% -1.15% Total debt to assets ratio 1.80 1.80 1.76 1.77 1.73 % change -0.10% 2.58% -0.66% 2.15% 2.09% \$1.4 Tangible assets \$ \$1,944,000 \$1,998,000 \$1,969,000 Total debt 2.83% % change 1.29% -2.70% to assets ratio Short-term debt \$ \$82,000 \$66,000 \$84,000 affords creditors % change -47.20% 2.44% 24.24% little degree Short-term debt % of total debt 2.21% 2.18% 1.75% of protection 24.54% % change 1.52% -48.04% from loss Short-term debt % of working capital 27.91% 31.18% 22.92% -75.25% % change -10.49% 36.05% Total liabilities \$ \$4,838,000 \$4,815,000 \$4,908,000 \$4,863,000 \$4,884,000 % change 0.93% -0.43% 0.95% 0.48% 0.73% Total debt to EBITDA ratio (annualized) 7.41 10.11 8.81 37.09 12.12 % change -26.69% 14.78% -76.26% 206.02% -4.32% Source: 10-0 10-0 10-0 10-K 10-0 11/13/2018 8/7/2018 5/14/2018 3/2/2018 11/14/2017

# **QUARTERLY LIQUIDITY RATIOS AND RATES OF RETURN**

	Liquidity Rati	ios - Sequei		qı	Meager cash and nick ratios
Period Ended	9/30/2018	6/30/2018	3/31/2018	12/31/2017	9/30/2017
Current assets \$	\$1,058,000	\$1,013,000	\$1,023,000	\$940,000	\$999,000
% change	4.44%	-0.98%	8.83%	-5.91%	-1.67%
% of short-term debt	1,259.52%	1,235.37%	1,550.00%	752.00%	825.62%
Current liabilities \$	\$757,000	\$750,000	\$735,000	\$805,000	\$755,000
% change	0.93%	2.04%	-8.70%	6.62%	0.40%
Working capital \$	\$301,000	\$263,000	\$288,000	\$135,000	\$244,000
% change	14.45%	-8.68%	113.33%	-44.67%	-7.58%
% of sales (annualized)	7.90%	6.61%	7.61%	3.77%	6.67%
Cash \$	\$121,000	\$114,000	\$95,000	\$97,000	\$100,000
% change	6.14%	20.00%	-2.06%	-3.00%	-9.09%
% of short-term debt	144.05%	139.02%	143.94%	77.60%	82.64%
Cash ratio	0.16	0.15	0.13	0.12	0.13
% change	5.13%	17.56%	7.30%	-9.06%	-9.43%
Quick assets \$	\$584,000	\$587,000	\$599,000	\$559,000	\$600,000
% change	-0.51%	-2.00%	7.16%	-6.83%	-1.15%
% of short-term debt	695.24%	715.85%	907.58%	447.20%	495.87%
Quick ratio	0.77	0.78	0.82	0.69	0.79
% change	-1.43%	-3.96%	17.37%	-12.62%	-1.55%
Current ratio	1.40	1.35	1.39	1.17	1.32
% change	3.47%	-2.95%	19.19%	-11.75%	-2.07%
Source:	10-Q 11/13/2018	10-Q 8/7/2018	10-Q 5/14/2018	10-K 3/2/2018	10-Q 11/14/2017



# YEAR-OVER-YEAR STATEMENT OF CASH FLOWS

Negative cash from operating activities					
Statement of Cash Flows	Year-ovel		andardize	d - Year to	Date
Period Ended	9 mos 9/30/2018	9 mos 9/30/2017	9 mos 9/30/2016	9 mos 9/30/2015	9 mos 9/30/2014
					Reclassified 9/30/2015
Cash Flows from Operating Activities:					
Net income	(\$52,000)	(\$146,000)	\$59,000	(\$29,000)	(\$66,000)
Depreciation/depletion	115,000	112,000	228,000	102,000	109,000
Deferred taxes	0	(1,000)	3,000	2,000	(2,000)
Non-cash Items	(16,000)	5,000	(324,000)	3,000	29,000
Changes in working capital	(96,000)	(175,000)	(97,000)	(12,000)	(202,000)
Total cash from operating activities	(49,000)	(205,000)	(131,000)	66,000	(132,000)
Cash Flows from Investing Activities:					
Capital expenditures	(62,000)	(86,000)	(91,000)	(122,000)	(133,000)
Other investing cash flow items, total	50,000	5,000	314,000	8,000	(72,000)
Total cash from investing activities	(12,000)	(81,000)	223,000	(114,000)	(205,000)
Cash Flows from Financing Activities:					
Financing cash flow items	(1,000)	(25,000)	0	n/a	0
Issuance/retirement of debt, net	88,000	227,000	(195,000)	88,000	64,000
Total cash from financing activities	87,000	202,000	(195,000)	88,000	64,000
Foreign exchange effects	(4,000)	5,000	1,000	(9,000)	(5,000)
Net change in cash	22,000	(79,000)	(102,000)	31,000	(278,000)
Net cash-beginning balance	115,000	179,000	228,000	156,000	379,000
Net cash-ending balance	\$137,000	\$100,000	\$126,000	\$187,000	\$101,000
Supplemental Disclosures:	4		4		A
Cash interest paid	\$219,000	\$205,000	\$210,000	\$214,000	\$215,000
Cash taxes paid, supplemental	\$12,000	\$10,000	\$20,000	\$12,000	\$23,000
Source:	10-Q 11/13/2018	10-Q 11/14/2017	10-Q 11/14/2016	10-Q 11/9/2015	10-Q 11/9/2015

# **NEWS ALERTS: A TIMELINE OF CONCERNING HEADLINES**

	-	7 was \$88M; net loss for the year-to-date period increased 516% 38M for the equivalent 12 months in the previous year.		
3/28/2018	CRMZ News Service	Hexion Inc updated financials available		
For the period e	nding 3/31/2018, the Co	mpany reported a net loss of \$13M.		
6/1/2018	CRMZ News Service	Hexion Inc updated financials available		
period was \$351	M.	for the period ending 6/30/2018; net loss for the year-to-date		
10/2/2018	CRMZ News Service	Hexion Inc updated financials available		
The Company re period was \$53		M for the period ending 9/30/2018; net loss for the year-to-date		
11/29/2018	CRMZ News Service	Hexion Inc updated financials available		
lexion entered	into a separation agreen	nent with its Chief Operating Officer and Executive Vice President		
3/22/2019	CRMZ News Service	HEXION INC. FILES (8-K) Disclosing Change in Directors or Principal Officers		
lexion Inc. files	s for bankruptcy.			
4/1/2019	4/1/2019 CRMZ News Service Hexion Inc: Chapter 11 Petition filed on 4/1/2019			

## ABOUT THIS REPORT/CONTACT CREDITRISKMONITOR



CreditRiskMonitor is a financial risk analysis and news service that helps credit, supply chain and financial professionals stay ahead of and manage risk quickly, accurately and cost effectively. More than 35% of the Fortune 1000, plus over a thousand other large corporations worldwide, rely on our financial risk coverage of over 58,000 global public companies.

CreditRiskMonitor Bankruptcy Case Studies provide post-filing analyses of public company bankruptcies. Our case studies educate subscribers about methods they can apply to assess bankruptcy risk using CreditRiskMonitor's proprietary FRISK® score, robust financial database and timely news alerts.

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