Rockwood Holdings, Inc.
Form 424B7
November 14, 2012

Table of Contents

The information in this preliminary prospectus supplement is not complete and may be changed. A registration statement relating to these securities has been filed with the Securities and Exchange Commission and is effective. This preliminary prospectus supplement and the accompanying prospectus is not an offer to sell these securities and it is not soliciting an offer to buy these securities in any jurisdiction where the offer or sale is not permitted.

Filed Pursuant to Rule 424(b)(7)
Registration No. 333-171290

Subject to Completion, Dated November 14, 2012

PRELIMINARY PROSPECTUS SUPPLEMENT
(To Prospectus dated December 20, 2010)

6,900,838 Shares

Common Stock

The selling stockholders named in this prospectus supplement are selling 6,900,838 shares of our common stock. We will not receive any proceeds from the sale of our common stock by the selling stockholders.

You should carefully read this prospectus supplement and the accompanying prospectus, together with the documents we incorporate by reference, before you invest in our common stock.

Our common stock is listed on the New York Stock Exchange ("NYSE") under the symbol "ROC". The last reported sale price of our common stock on the NYSE on November 13, 2012, was $44.81 per share.

Investing in our common stock involves risks. See "Risk Factors" beginning on page S-7 of this prospectus supplement and on page 4 of the accompanying prospectus to read about factors you should consider before buying shares of our common stock. You should also consider the risk factors described in the documents we incorporate by reference.

The underwriter has agreed to purchase the shares of our common stock from the selling stockholders at a price of $ per share, which will result in approximately $ of proceeds to the selling stockholders.

The underwriter proposes to offer our shares of common stock from time to time for sale in one or more transactions on the NYSE, in the over-the-counter market, through negotiated transactions or otherwise at market prices prevailing at the time of sale, at prices related to prevailing market prices or at negotiated prices, subject to receipt and acceptance by them and subject to their right to reject any order in whole or in part.

Neither the Securities and Exchange Commission ("SEC") nor any state securities commission has approved or disapproved of these securities or passed upon the accuracy or adequacy of this prospectus supplement. Any representation to the contrary is a criminal offense.

The underwriter expects to deliver the shares to purchasers on or about November , 2012.

Morgan Stanley

, 2012

TABLE OF CONTENTS

Prospectus Supplement

	Page
About this Prospectus Supplement	S-ii
Forward-Looking Statements	S-iii
Industry and Market Data	S-iv
Prospectus Supplement Summary	S-1
Risk Factors	S-7
Use of Proceeds	S-9
Price Range of Common Stock	S-10
Dividend Policy	S-11
Selling Stockholders	S-12
Certain United States Federal Income and Estate Tax Consequences to Non-U.S. Holders	S-13
Underwriting	S-17
Validity of the Shares	S-22
Experts	S-22
Incorporation of Certain Information By Reference	S-23

Prospectus

	Page
About this Prospectus	i
Our Company	1
Forward-looking Statements	2
Risk Factors	4
Use of Proceeds	4
Description of Our Capital Stock	4
Plan of Distribution	8
Legal Matters	10
Experts	10
Where You Can Find Additional Information	10
Incorporation of Certain Information By Reference	10

Table of Contents

ABOUT THIS PROSPECTUS SUPPLEMENT

This document is in two parts. The first part is this prospectus supplement, which describes the terms of this offering of shares of our common stock by the selling stockholders named herein. The second part is the accompanying prospectus, which provides more general information. This prospectus supplement and the accompanying prospectus are part of a registration statement on Form S-3 that we filed with the Securities and Exchange Commission, or the Commission, on December 20, 2010. Generally, when we refer to the prospectus, we are referring to both parts of this document combined. If the description of this offering varies between the prospectus supplement and the accompanying prospectus, you should rely on the information in this prospectus supplement. This prospectus supplement contains information about the shares of our common stock offered in this offering and may add, update or change information in the accompanying prospectus. Before you invest in shares of our common stock, you should read this prospectus supplement, along with the accompanying prospectus, in addition to the information contained in the documents we refer to under the heading "Incorporation of Certain Information by Reference" in this prospectus supplement, which are incorporated by reference herein.

Terms used but not defined in this prospectus supplement shall have the meanings ascribed to them in the accompanying prospectus.

You should rely only on the information contained or incorporated by reference in this prospectus supplement and the accompanying prospectus or any free writing prospectus prepared by us. Neither we nor the selling stockholders have authorized any other person to provide you with different information. If anyone provides you with different or inconsistent information, you should not rely on it. The selling stockholders are only offering to sell, and only seeking offers to buy, our common stock in jurisdictions where offers and sales are permitted.

Unless we indicate otherwise or the context otherwise requires, any references to "we", "our", "us", the "Company" or "Rockwood" refer to Rockwood Holdings, Inc. and its consolidated subsidiaries.

Table of Contents

FORWARD-LOOKING STATEMENTS

This document contains forward-looking statements. Forward-looking statements within the context of the Private Securities Litigation Reform Act of 1995 are not statements of historical fact and may involve a number of risks and uncertainties. Forward-looking statements give our current expectations or forecasts of future events and estimates of amounts not yet determinable. We have used the words "anticipate", "estimate", "expect", "project", "intend", "plan", "believe", "predict", "could", "may" and other words and terms of similar meaning, including references to assumptions, in this report to identify forward-looking statements. These forward-looking statements are made based on expectations and beliefs concerning future events affecting us and are subject to uncertainties and factors relating to our operations and business environment, all of which are difficult to predict and many of which are beyond our control, that could cause our actual results to differ materially from those expressed in or implied by these forward-looking statements. In particular, these factors include, among other things:

our ability to consummate the acquisition of Talison Lithium Limited, a company incorporated in Australia, on the proposed terms and contemplated schedule, and integrate Talison's business with our lithium business;

our business strategy;

changes in the general economic conditions in North America and Europe and in other locations in which we currently do business;

competitive pricing or product development activities affecting demand for our products;

technological changes affecting production of our materials;

fluctuations in interest rates, exchange rates and currency values;

availability and pricing of raw materials;

governmental and environmental laws and regulations and changes in those laws and regulations;

fluctuations in energy prices;

changes in the end-use markets in which our products are sold;

hazards associated with chemicals manufacturing;

our ability to access capital markets;

our high level of indebtedness;

risks associated with negotiating, consummating and integrating acquisitions;

risks associated with competition and the introduction of new competing products, especially from the Asia-Pacific region;

risks associated with international sales and operations; and

risks associated with information security.

You should keep in mind that any forward-looking statements made by us in this prospectus supplement or elsewhere speak only as of the date on which we make them. New risks and uncertainties come up from time to time, and it is impossible for us to predict these events or how they may affect us. We disclaim any obligation to update or revise any forward-looking statements, whether as a result of new information, future events or otherwise.

Table of Contents

INDUSTRY AND MARKET DATA

Although data regarding the specialty chemicals industry, our end-use markets, our market position and market share within our industry are inherently imprecise, we believe such data are generally reliable. Industry surveys and publications generally state that the information contained therein has been obtained from sources believed to be reliable. We have not independently verified any of the data from third party sources. Similarly, while we believe internal company surveys and management estimates to be reliable, we have not verified them, nor have they been verified by any independent source. While we are not aware of any misstatements regarding any industry data presented or incorporated by reference herein, estimates, in particular as they relate to general expectations concerning the specialty chemicals industry, involve risks and uncertainties and are subject to change based on various factors, including those discussed under the captions "Risk Factors" in this prospectus supplement and in the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2011 (the "2011 Annual Report") which document is incorporated by reference herein, and "Forward-Looking Statements" in this prospectus supplement.

Table of Contents

PROSPECTUS SUPPLEMENT SUMMARY

This summary highlights information contained elsewhere, or incorporated by reference, in this prospectus supplement. As a result, it does not contain all of the information that may be important to you or that you should consider before investing in our common stock. You should read this entire prospectus supplement and accompanying prospectus, including the "Risk Factors" sections of this prospectus supplement and the 2011 Annual Report and the other documents incorporated by reference, which are described under "Incorporation of Certain Information by Reference" in this prospectus supplement.

Our Company

Rockwood is a global developer, manufacturer and marketer of high value added specialty chemicals and advanced materials used for industrial and commercial purposes. Rockwood is focused on lithium and lithium compounds, surface treatment chemicals, advanced ceramics, titanium dioxide pigments, iron-oxide pigments, timber treatment chemicals and clay-based additives.

Our products consist primarily of inorganic chemicals and solutions and engineered materials. They are often customized to meet the complex needs of our customers and to enhance the value of their end products by improving performance, providing essential product attributes, lowering costs and/or making them more environmentally friendly. We generally compete in niche markets in a wide range of end-use markets, including metal treatment and general industry, chemicals and plastics, automotive, life sciences (including pharmaceutical and medical markets), construction, specialty coatings, electronics and telecommunications. No single end-use market accounted for more than 17% of our 2011 net sales.

We have a number of growth product lines, such as lithium compounds for advanced batteries in our Lithium business, aerospace applications in our Surface Treatment business and ceramic medical device components in our Advanced Ceramics business, which are complemented by a diverse portfolio of businesses that historically have generated stable revenues. Our high margins, diverse customer and end-use market base, capital discipline and ongoing productivity improvements provide us with a platform to capitalize on market growth opportunities.

We operate globally, manufacturing our products in 82 facilities in 23 countries and selling our products and providing our services to more than 60,000 customers, including some of the world's preeminent companies. We believe our products are generally critical to our customers' products' performance, but account for a small percentage of the total cost of their products. No single customer accounted for more than 2% of our 2011 net sales.

Our principal executive offices are located at 100 Overlook Center, Princeton, New Jersey 08540. Our telephone number is (609) 514-0300. Our website address is www.rocksp.com. Information contained on our website is not a part of this prospectus supplement or the accompanying prospectus.

Our Competitive Strengths

Leading market positions. We believe we hold leading market positions within many of our businesses. For example, we believe that based on our 2011 net sales, we have leading market positions for the following products in our segments:

Operating Segment	Products	Market Positions
Lithium	Lithium compounds and chemicals	#1 globally
Surface Treatment	Metal processing chemical and services	# 2 globally

Table of Contents

Operating Segment	Products	Market Positions
Performance Additives		# 2 global supplier
	Synthetic iron oxide pigments	
Titanium Dioxide Pigments		A leading global producer
	Specialty titanium dioxide pigments, zinc sulfide and barium sulfate additives	
Advanced Ceramics		#1 globally
	Ceramic-on-ceramic ball head and liner components used in hip joint prostheses systems	

Leading technologies. We believe we are recognized as an innovative industry leader in many of our businesses due to our technological know-how and strong customer focus. We identify, commercialize and market new products, which we develop internally or with third parties, through acquisitions or license agreements, to enhance our customers' products or processes. For example, in our Surface Treatment segment we developed Oxsilan TM, a chrome-free metal pre-treatment technology that helps our customers reduce manufacturing costs, increase productivity and reduce their environmental impact.

High-margin products and strong cash flow. Our businesses historically have generated significant cash flow as a result of the sale of high margin products, continuous productivity improvements, cost control, capital discipline and working capital management.

Limited exposure to raw materials and energy prices. We have a broad raw material base consisting primarily of inorganic (non-petrochemical) materials, most of which are readily available and whose prices follow their own individual supply and demand relationships and have historically shown little correlation to each other. No single raw material amounted to more than 3% of our costs of products sold in 2011.

Our Business Strategy

Building on these strengths, we plan to continue our existing strategy to grow revenue, cash flow and earnings per share, increase profitability and reduce leverage as follows:

Capitalize on expected market growth opportunities. We expect our businesses to benefit from a number of growth opportunities, including:

- Lithium increased demand for longer-life lithium-based batteries in electric and hybrid electric automobiles and electronics, lithium compounds in pharmaceuticals and aluminum alloys for aerospace applications;
- Surface Treatment growth in emerging markets and increased demand for our surface treatment products that enhance the manufacturing process of customers by reducing energy usage and waste; and
- Advanced Ceramics growth in emerging markets and growth related to ceramic medical components, such as those used in ceramic hip-joint systems, and a trend toward replacing plastics and metals with high-performance ceramics.

Focus on our core businesses and effect selective divestitures. We intend to continue to focus on our core businesses that have market and technology leadership, growth opportunities and higher margins. We expect, from time to time, to divest those businesses or segments that do not fit our long-term strategies. For example, on January 7, 2011, we completed the sale of our plastic compounding business, which comprised substantially all of our former Specialty Compounds segment.

Table of Contents

Optimize financial leverage. We have demonstrated a long-term ability to reduce our leverage and improve our net debt-to-Adjusted EBITDA ratio. Since 2003, we have reduced our net debt-to-Adjusted EBITDA ratio from 6.8x to 1.8x for the twelve months ended September 30, 2012. We believe that our strong cash flow generation from organic growth opportunities within our existing and emerging markets, continued cost control programs and productivity improvements and focus on working capital will enable us to reduce our net debt-to-Adjusted EBITDA ratio, to between 1.5x and 2.0x, as well as our debt and interest expense.

Achieve profitable growth through selective acquisitions and strategic alliances. We intend to continue to selectively pursue accretive acquisitions and strategic alliances in order to strengthen and expand our existing business lines and enter into complementary business lines. As further described below under " Recent Developments", on August 23, 2012, we entered into an agreement to acquire all of the ordinary shares of Talison Lithium Limited, a leading global producer of lithium concentrate. This acquisition is expected to be completed in the fourth quarter of 2012 and is expected to strengthen our position as a leading global supplier of lithium compounds, secure an alternative source of raw materials and provide access to the growing markets for lithium materials in the Asia-Pacific region.

Our Business Segments

We currently operate our business through the following five business segments: (1) Lithium; (2) Surface Treatment; (3) Performance Additives; (4) Titanium Dioxide Pigments and (5) Advanced Ceramics.

The following table sets forth net sales of each segment and the percentage of our total net sales for the year ended December 31, 2011, as well as our principal products and our principal end-use markets. For financial information about each segment, see Note 3, "Segment Information", in the consolidated financial statements in the our current report on Form 8-K filed on September 18, 2012, which is incorporated by reference herein.

Segment	2011 Net Sales $ in Millions	2011 Net Sales % of Total	Principal Products	Principal End-Use Markets
Lithium	$ 456.5	13%		
			Lithium compounds and chemicals	Batteries for hybrid and electric vehicles and electronic devices
			Cesium, alconium and other special metal products	Life sciences (pharmaceutical synthesis and polymers)
				Alloys for aerospace industry
				Polymerization initiators for elastomers
Surface Treatment	$ 743.2	20%		
			Metal surface treatment chemicals including corrosion protection/ prevention oils	Automotive pre-coating metal treatment and car body pre-treatment
			Maintenance chemicals	Steel and metal working

Aircraft industry

Table of Contents

Segment	2011 Net Sales $ in Millions	% of Total	Principal Products	Principal End-Use Markets
Performance Additives	$ 784.4	21%		
			Iron-oxide pigments	Residential and commercial construction and plastics
			Wood protection products	Coatings
			Inorganic chemicals	Personal care, paper manufacturing and foundries
			Synthetic and organic thickeners	Oilfield
			Flocculants	Water treatment
Titanium Dioxide Pigments	$ 930.4	25%		
			Titanium dioxide pigments	Synthetic fibers for clothing
			Barium compounds	Plastics
			Zinc compounds	Paper
				Paints and coatings
				Pharmaceutical contrast media
Advanced Ceramics	$ 585.1	16%		
			Ceramic ball head and liner components used in hip joint prostheses systems	Medical (hip replacement surgery)

			Ceramic tapes	Industrial
			Cutting tools	Electronics
			Wear and corrosion	Automotive
			Armor components	
Corporate and other(a)	$	169.7	5%	
			Natural and synthetic metal sulfides	Disc brakes
			Wafer recycling and repair	Semiconductors manufacturing
			Rubber/thermoplastic compounds	Automotive
	$	3,669.3	100%	

(a) Represents our metal sulfides business, European wafer reclaim business and our rubber/thermoplastic compounding business.

Table of Contents

Recent Developments

In August 2012, we entered into a scheme implementation agreement with Talison Lithium Limited ("Talison") to acquire all of the outstanding shares of Talison in an all-cash transaction for C$6.50 per share for an equity purchase price of approximately C$724 million ($736 million, based on an exchange rate of C$1 = $1.0166 as of September 30, 2012) plus any amounts in connection with any exercise of outstanding Talison stock options through the closing date. Talison is a leading global producer of lithium and has been supplying a global customer network from the Greenbushes Lithium Operations in Western Australia for over 25 years. This acquisition is expected to be completed in the fourth quarter of 2012 and is expected to strengthen our position as a leading global supplier of lithium compounds, secure an alternative source of raw materials and provide access to the growing markets for lithium materials in the Asia-Pacific region. This transaction is subject to the approval of Talison shareholders and other customary closing conditions.

On November 12, 2012, Chengdu Tianqi Industry Group Co., Ltd. ("Tianqi") announced that its wholly-owned subsidiary has acquired, and agreed to acquire, ordinary shares of Talison representing an aggregate of 14.99% of Talison's issued and outstanding ordinary shares, calculated on a non-diluted basis. In addition, Tianqi announced an intention to submit a proposal to Talison under which its wholly-owned subsidiary would acquire all of the remaining ordinary shares of Talison. Tianqi announced that it intends to submit its proposal prior to the Talison shareholder meeting to consider Rockwood's scheme of arrangement, which is scheduled for November 29, 2012. According to Tianqi's announcement, Tianqi (through its subsidiaries) currently purchases approximately 40% of the chemical grade lithium concentrate produced by Talison and is the sole distributor in China of Talison's technical grade lithium concentrate. We cannot assure you that Rockwood's acquisition of Talison will occur on the terms contained in the scheme implementation agreement or at all.

Table of Contents

The Offering

Common stock offered by the selling stockholders	6,900,838 shares
Common stock to be outstanding after this offering	78,320,527 shares
Selling stockholders	Funds affiliated with KKR are offering shares of common stock pursuant to this prospectus supplement. See "Selling Stockholders".
Use of proceeds	We will not receive any proceeds from the sale of common stock by the selling stockholders.
New York Stock Exchange symbol	ROC

The number of shares of common stock being offered by the selling stockholders includes 667,819 shares of common stock we will issue to a fund affiliated with KKR pursuant to the exercise on November 14, 2012 of warrants to purchase 973,170 shares of common stock issued to such fund by us in July 2003. The warrants had an exercise price of $14.387 per share and were exercised on a cashless basis.

Risk Factors

Investing in our common stock involves substantial risk. See "Risk Factors" in this prospectus supplement and the accompanying prospectus, and the risk factors in the documents we incorporate by reference, for a description of the risks you should consider before investing in our common stock.

Table of Contents

RISK FACTORS

An investment in our common stock may involve various risks. Prior to making a decision about investing in our common stock, and in consultation with your own financial and legal advisors, you should carefully consider, among other matters, the risks described below and in our 2011 Annual Report, as well as other information and data included in, or incorporated by reference into, this prospectus supplement and accompanying prospectus. If any of the events described in the risk factors below occur, our business, financial condition, results of operations, liquidity and prospects could be materially adversely affected, which in turn could adversely affect the trading price of our common stock or our ability to repay existing indebtedness. However, the selected risks described below and in the documents incorporated by reference are not the only risks facing us. Our business, financial condition, results of operations or liquidity could also be adversely affected by additional factors that apply to all companies generally, as well as other risks that are not currently known to us or that we currently view to be immaterial. While we attempt to mitigate known risks to the extent we believe to be practicable and reasonable, we can provide no assurance, and we make no representation, that our mitigation efforts will be successful. In such a case, the trading price of our common stock could decline, and you may lose all or part of your original investment.

Risks Associated with Acquisitions

We may not be able to complete proposed acquisitions, including the Talison acquisition, nor successfully integrate acquisitions we may undertake in the future.

The process of combining or acquiring businesses with Rockwood involves risks. We may face difficulty integrating the new operations, technologies, products and services of Talison or future acquisitions or combinations, and may incur unanticipated expenses related to such transactions. The difficulties of combining operations may be magnified by integrating personnel with differing business backgrounds and corporate cultures. Failure to successfully manage and integrate acquisitions with our existing operations could lead to the potential loss of customers of the acquired business, the potential loss of employees who may be vital to the new operations, the potential loss of business opportunities or other adverse consequences that could affect our financial condition and results of operations. Even if integration occurs successfully, failure of any acquisition or combination to achieve levels of anticipated sales growth, profitability or productivity comparable with those achieved by our existing operations, or otherwise not perform as expected, may adversely impact our financial condition and results of operations.

In addition, certain acquisitions may trigger regulations designed to monitor competition and would therefore require regulatory approval. We cannot predict whether such authorities will approve acquisitions we seek to accomplish in the future. In particular, we cannot assure you that our acquisition of Talison will occur on the terms contained in the scheme implementation agreement or at all.

Risks Related to this Offering

The price of our common stock may fluctuate, which may make it difficult for you to resell your common stock when you want or at prices you find attractive.

The price of our common stock on the NYSE constantly changes. We expect that the market price of our common stock will continue to fluctuate. Holders of our common stock will be subject to the risk of volatility and changes in prices.

Our common stock price can fluctuate as a result of a variety of factors, many of which are beyond our control. These factors include:

new laws or regulations or new interpretations of existing laws or regulations applicable to our business;

Table of Contents

changes in accounting standards, policies, guidance, interpretations or principles;

our ability to raise additional capital;

sales of common stock by us or members of our management team;

quarterly variations in our operating results;

operating results that vary from the expectations of management, securities analysts and investors;

changes in expectations as to our future financial performance, including financial estimates by securities analysts and investors;

developments generally affecting our industry;

changes in our dividend policy;

future sales of our equity securities;

fluctuating market conditions as a result of uncertain governmental economic policies; and

general domestic economic conditions.

In addition, the stock market may experience volatility unrelated to the operating performance of a particular company. These broad market fluctuations may adversely affect the market price of our common stock.

Anti-takeover measures Certain provisions in our amended and restated certificate of incorporation and amended and restated bylaws may prevent another party's ability to acquire us without approval by our board of directors, which may deprive you of the opportunity to obtain a takeover premium for your shares.

Our amended and restated certificate of incorporation and our amended and restated bylaws contain a number of anti-takeover measures. For example, our amended and restated certificate of incorporation provides for a classified board of directors, limitations on the removal of directors, the inability of stockholders to act by written consent (subject to certain exceptions), call special meetings or fill vacancies on our board of directors; requires stockholders to give advance notice for stockholder proposals and director nominations; and authorizes the issuance of preferred stock without stockholder approval and upon such terms as our board of directors may determine.

These provisions may discourage potential acquisition proposals and may delay, deter or prevent a change of control of our company, including through transactions, and, in particular, unsolicited transactions, that some or all of our stockholders might consider to be desirable and through which some or all of our stockholders may obtain a premium for their shares. They may also adversely affect the prevailing market price of the common stock.

Net Loss We have experienced losses in the past and may experience losses in the future and cannot be certain that our net operating loss carryforwards will continue to be available to offset our tax liability.

We have incurred net losses in the past and we may incur net losses in the future. As of September 30, 2012, we had deferred tax assets of $155.1 million related to worldwide net operating and capital loss carryforwards. Additionally, at September 30, 2012, we had a total valuation allowance of $32.8 million related to net operating loss deferred tax assets and deferred tax assets related to cumulative temporary differences. If our operating performance deteriorates in the future in certain tax jurisdictions, we may be unable to realize these net operating loss carryforwards and we may be required to record an additional valuation allowance.

You may not receive dividends on our common stock.

Holders of our common stock are entitled to receive such dividends as our board of directors may declare out of funds legally available for such payments. The declaration of future dividends on our common stock will be made at the discretion of our board of directors and will depend on, among other things, our results of operations, cash requirements, financial condition, contractual restrictions and other factors that our board of directors may deem relevant. Although we declared cash dividends on our common stock on June 11, 2012 and August 6, 2012, we are not required to do so and may reduce or eliminate our common stock dividend in the future. This could adversely affect the market price of our common stock.

Table of Contents

USE OF PROCEEDS

All of the shares of common stock offered pursuant to this prospectus supplement will be sold by the selling stockholders. We will not receive any proceeds from the sale of our common stock by the selling stockholders. See "Selling Stockholders."

Table of Contents

PRICE RANGE OF COMMON STOCK

Our common stock has traded on the NYSE, under the symbol "ROC," since August 16, 2005. Prior to that time, there was no public market for our stock. The following table sets forth the high and low sales prices per share of our common stock, as reported by the NYSE for the periods indicated.

	High	Low
2012		
Fourth Quarter (through November 13, 2012)	$ 50.29	$ 43.32
Third Quarter	52.33	40.52
Second Quarter	56.99	41.19
First Quarter	57.00	39.36
2011		
Fourth Quarter	$ 49.82	$ 30.43
Third Quarter	62.03	33.69
Second Quarter	57.29	45.78
First Quarter	49.83	38.01
2010		
Fourth Quarter	$ 42.24	$ 31.55
Third Quarter	32.66	21.59
Second Quarter	31.30	21.88
First Quarter	26.95	20.20

The closing price of our common stock, as reported by the NYSE, on November 13, 2012 was $44.81 per share. As of October 24, 2012, there were 77,652,708 shares of common stock outstanding and approximately 46 holders of record of our common stock.

Table of Contents

DIVIDEND POLICY

On June 11, 2012, our board of directors adopted a policy to commence a quarterly cash dividend program and declared an initial quarterly cash dividend of $0.35 per share which was paid on July 11, 2012 to all common shareholders of record as of June 26, 2012. On September 5, 2012, a cash dividend of $0.35 per share was paid. In addition, we are a holding company that does not conduct any business operations of our own. As a result, we are dependent upon cash dividends and distributions and other transfers from our subsidiaries to make dividend payments on our common stock. The amounts available to us to pay cash dividends are restricted by our subsidiaries' debt agreements. Under Rockwood Specialties Group Inc.'s senior secured credit facilities and indenture governing the 2020 Notes, Rockwood Specialties Group Inc. is permitted to pay dividends or other distributions to us subject to certain limitations and exceptions. Under our senior secured credit agreement, our ability to pay dividends is limited to $600 million, plus additional amounts subject to satisfying certain leverage ratios. Any decision to declare and pay dividends in the future will be made at the discretion of our board of directors and will depend on, among other things, our results of operations, cash requirements, financial condition, contractual restrictions and other factors that our board of directors may deem relevant.

Table of Contents

SELLING STOCKHOLDERS

The table below sets forth the name of the selling stockholders and the number of shares of common stock offered hereby. The number of shares outstanding and the percentages of beneficial ownership are based on 77,652,708 shares of common stock outstanding as of October 24, 2012.

Name of Selling Stockholders	Beneficial Ownership of Shares of Common Stock Prior to the Offering(1)	Percent of Shares of Common Stock Owned Before the Offering	Shares of Common Stock Offered in the Offering	Beneficial Ownership of Shares of Common Stock After the Offering	Percent of Shares of Common Stock Owned After the Offering
KKR(2)	7,815,678	10.0%	6,900,838	914,840(3)	1.2%(3)

(1) The amounts and percentages of our common stock beneficially owned are reported on the basis of regulations of the SEC governing the determination of beneficial ownership of securities. Under the rules of the SEC, a person is deemed to be a "beneficial owner" of a security if that person has or shares "voting power", which includes the power to vote or to direct the voting of such security, or "investment power", which includes the power to dispose of or to direct the disposition of such security. A person is also deemed to be a beneficial owner of any securities of which that person has a right to acquire beneficial ownership within 60 days. Under these rules, more than one person may be deemed to be a beneficial owner of such securities as to which such person has an economic interest.

(2) KKR affiliates beneficially own as a group 7,815,678 shares of our common stock as follows:

1,739,923 shares of common stock are held by KKR Millennium Fund L.P., which includes 667,819 shares of common stock that were issued to it by the Company upon KKR Millennium Fund L.P.'s cashless exercise of its warrants to purchase 973,170 shares of common stock, which were issued to it on July 23, 2003, at an exercise price of $14.387 per share. As the sole general partner of KKR Millennium Fund L.P., KKR Associates Millennium L.P. may be deemed to be the beneficial owner of such securities held by KKR Millennium Fund L.P. As the sole general partner of KKR Associates Millennium L.P., KKR Millennium GP LLC also may be deemed to be the beneficial owner of such securities held by KKR Millennium Fund L.P.

5,011,109 shares of common stock are held by KKR European Fund, Limited Partnership. As the sole general partner of KKR European Fund, Limited Partnership, KKR Associates Europe, Limited Partnership may be deemed to be the beneficial owner of such shares held by KKR European Fund, Limited Partnership. As the sole general partner of KKR Associates Europe, Limited Partnership, KKR Europe Limited also may be deemed to be the beneficial owner of such shares held by KKR European Fund, Limited Partnership.

Each of KKR Fund Holdings L.P. (as the designated member of KKR Millennium GP LLC and the sole shareholder of KKR Europe Limited); KKR Fund Holdings GP Limited (as a general partner of KKR Fund Holdings L.P.); KKR Group Holdings L.P. (as a general partner of KKR Fund Holdings L.P. and the sole shareholder of KKR Fund Holdings GP Limited); KKR Group Limited (as the sole general partner of KKR Group Holdings L.P.); KKR & Co. L.P. (as the sole shareholder of KKR Group Limited) and KKR Management LLC (as the sole general partner of KKR & Co. L.P.) may also be deemed to be the beneficial owner of the securities held by KKR Millennium Fund L.P. and KKR European Fund, Limited Partnership.

825,129 shares of common stock are held by KKR Associates 1996 L.P. As the sole general partner of KKR Associates 1996 L.P., KKR 1996 GP LLC may be deemed to be the beneficial owner of such shares held by KKR Associates 1996 L.P.

149,806 shares of common stock are held by KKR Partners III, L.P. (Series F). As the sole general partner of KKR Partners III, L.P. (Series F), KKR III GP LLC may be deemed to be the beneficial owner of such shares held by KKR Partners III, L.P. (Series F).

89,711 shares of common stock are held by Aurora Investments II, LLC.

Table of Contents

As the designated members of KKR Management LLC, the managers of KKR 1996 GP LLC, Strata L.L.C., KKR III GP LLC and Aurora Investments II, LLC, and members of the executive committee of KKR Associates, L.P., Henry R. Kravis and George R. Roberts may also be deemed to beneficially own the securities held by KKR Millennium Fund L.P., KKR European Fund, Limited Partnership, KKR 1996 Fund L.P., KKR Partners II, L.P., KKR Partners III, L.P. (Series F) and Aurora Investments II, LLC. Messrs. Kravis and Roberts have also been designated as managers of KKR Millennium GP LLC by KKR Fund Holdings L.P.

Each person, other than the record holder, disclaims beneficial ownership of the securities held by KKR Millennium Fund L.P., KKR European Fund, Limited Partnership, KKR 1996 Fund L.P., KKR Partners II, L.P., KKR Partners III, L.P. (Series F) and Aurora Investments II, LLC.

The address for each of the foregoing is 9 West 57th Street, New York, NY 10019.

The 6,900,838 shares being offered by KKR affiliates in this offering are being offered as follows:

Name of Fund	Shares of Common Stock Offered in the Offering
KKR European Fund, Limited Partnership	5,011,109
KKR Millennium Fund L.P.	1,739,923
KKR Partners III, L.P. (Series F)	149,806
Total	6,900,838

In addition, we expect that following the closing of this offering, KKR Associates 1996 L.P. will transfer all shares of common stock held by it to its partners as an "in-kind" distribution and Aurora Investments II, LLC will transfer all shares of common stock held by it to its members as an "in-kind" distribution.

(3)

Represents the sum of 825,129 shares of common stock held by KKR Associates 1996 L.P. that will be distributed to its partners as an "in-kind" distribution following the closing of this offering and 89,711 shares of common stock held by Aurora Investments II, LLC that will be distributed to its members as an "in-kind" distribution following the closing of this offering.

CERTAIN UNITED STATES FEDERAL INCOME AND ESTATE TAX CONSEQUENCES TO NON-U.S. HOLDERS

The following is a summary of certain United States federal income and estate tax consequences of the purchase, ownership and disposition of our common stock as of the date hereof. Except where noted, this summary deals only with common stock that is held as a capital asset by a non-U.S. holder.

A "non-U.S. holder" means a person (other than a partnership or any other entity treated as a partnership for United States federal income tax purposes) that is not for United States federal income tax purposes any of the following:

an individual citizen or resident of the United States;

a corporation (or any other entity treated as a corporation for United States federal income tax purposes) created or organized in or under the laws of the United States, any state thereof or the District of Columbia;

an estate the income of which is subject to United States federal income taxation regardless of its source; or

a trust if it (1) is subject to the primary supervision of a court within the United States and one or more United States persons have the authority to control all substantial decisions of the trust

Table of Contents

or (2) has a valid election in effect under applicable United States Treasury regulations to be treated as a United States person.

This summary is based upon provisions of the Internal Revenue Code of 1986, as amended (the "Code") and regulations, rulings and judicial decisions as of the date hereof. Those authorities may be changed, perhaps retroactively, so as to result in United States federal income and estate tax consequences different from those summarized below. This summary does not address all aspects of United States federal income and estate taxes and does not deal with foreign, state, local or other tax considerations that may be relevant to non-U.S. holders in light of their personal circumstances. In addition, it does not represent a detailed description of the United States federal income and estate tax consequences applicable to you if you are subject to special treatment under the United States federal income tax laws (including if you are a United States expatriate, "controlled foreign corporation", "passive foreign investment company" or a partnership or other pass-through entity for United States federal income tax purposes). We cannot assure you that a change in law will not alter significantly the tax considerations that we describe in this summary.

If a partnership holds our common stock, the tax treatment of a partner will generally depend upon the status of the partner and the activities of the partnership. If you are a partner of a partnership holding our common stock, you should consult your tax advisors.

If you are considering the purchase of our common stock, you should consult your own tax advisors concerning the particular United States federal income and estate tax consequences to you of the ownership of the common stock, as well as the consequences to you arising under the laws of any other taxing jurisdiction.

Dividends

Dividends paid to a non-U.S. holder of our common stock generally will be subject to withholding of United States federal income tax at a 30% rate or such lower rate as may be specified by an applicable income tax treaty. However, dividends that are effectively connected with the conduct of a trade or business by the non-U.S. holder within the United States (and, if required by an applicable income tax treaty, are attributable to a United States permanent establishment or fixed base) are not subject to the withholding tax, provided such non-U.S. holder completes Internal Revenue Service Form W-8ECI (or other applicable form) properly certifying such exemption. Instead, such dividends are subject to United States federal income tax on a net income basis in the same manner as if the non-U.S. holder were a United States person as defined under the Code, unless an applicable income tax treaty provides otherwise. Any such effectively connected dividends received by a foreign corporation may be subject to an additional "branch profits tax" at a 30% rate or such lower rate as may be specified by an applicable income tax treaty.

A non-U.S. holder of our common stock who wishes to claim the benefit of an applicable treaty rate and avoid backup withholding, as discussed below, for dividends will be required (a) to complete Internal Revenue Service Form W-8BEN (or other applicable form) and certify under penalty of perjury that such holder is not a United States person as defined under the Code and is eligible for treaty benefits or (b) if our common stock is held through certain foreign intermediaries, to satisfy the relevant certification requirements of applicable United States Treasury regulations. Special certification and other requirements apply to certain non-U.S. holders that are pass-through entities rather than corporations or individuals.

A non-U.S. holder of our common stock eligible for a reduced rate of United States withholding tax pursuant to an income tax treaty may obtain a refund of any excess amounts withheld by timely filing an appropriate claim for refund with the Internal Revenue Service.

Table of Contents

Gain on Disposition of Common Stock

Any gain realized on the disposition of our common stock generally will not be subject to United States federal income tax unless:

- the gain is effectively connected with a trade or business of the non-U.S. holder in the United States (and, if required by an applicable income tax treaty, is attributable to a United States permanent establishment or fixed base of the non-U.S. holder);
- the non-U.S. holder is an individual who is present in the United States for 183 days or more in the taxable year of that disposition, and certain other conditions are met; or
- we are or have been a "United States real property holding corporation" for United States federal income tax purposes.

An individual non-U.S. holder described in the first bullet point immediately above will be subject to tax on the net gain derived from the sale under regular graduated United States federal income tax rates, unless an applicable income tax treaty provides otherwise. An individual non-U.S. holder described in the second bullet point immediately above will be subject to a flat 30% tax on the gain derived from the sale, which may be offset by United States source capital losses, even though the individual is not considered a resident of the United States. If a non-U.S. holder that is a foreign corporation falls under the first bullet point immediately above, it will be subject to tax on its net gain in the same manner as if it were a United States person as defined under the Code and, in addition, may be subject to the branch profits tax equal to 30% of its effectively connected earnings and profits or at such lower rate as may be specified by an applicable income tax treaty.

We believe we are not and do not anticipate becoming a "United States real property holding corporation" for United States federal income tax purposes although no assurance can be given in this regard as the determination of whether we are a "United States real property holding corporation" is fact-specific and depends on the composition of our assets. If, contrary to our belief, we are or become a "United States real property holding corporation", so long as our common stock continues to be regularly traded on an established securities market (such as the NYSE), only a non-U.S. holder who holds or held, (at any time during the shorter of the five year period preceding the date of disposition or the holder's holding period) more than 5% of our common stock will be subject to United States federal income tax on the disposition of our common stock.

Federal Estate Tax

Common stock held by an individual non-U.S. holder at the time of death will be included in such holder's gross estate for United States federal estate tax purposes, unless an applicable estate tax treaty provides otherwise.

Information Reporting and Backup Withholding

We must report annually to the Internal Revenue Service and to each non-U.S. holder the amount of dividends paid to such holder and the tax withheld with respect to such dividends, regardless of whether withholding was required. Copies of the information returns reporting such dividends and withholding may also be made available to the tax authorities in the country in which the non-U.S. holder resides under the provisions of an applicable income tax treaty.

A non-U.S. holder will be subject to backup withholding for dividends paid to such holder unless such holder certifies under penalty of perjury that it is a non-U.S. holder (and the payor does not have actual knowledge or reason to know that such holder is a United States person as defined under the Code), or such holder otherwise establishes an exemption.

Table of Contents

Information reporting and, depending on the circumstances, backup withholding will apply to the proceeds of a sale of our common stock within the United States or conducted through certain United States-related financial intermediaries, unless the beneficial owner certifies under penalty of perjury that it is a non-U.S. holder (and the payor does not have actual knowledge or reason to know that the beneficial owner is a United States person as defined under the Code), or such owner otherwise establishes an exemption.

Backup withholding is not an additional tax. Any amounts withheld under the backup withholding rules may be allowed as a refund or a credit against a non-U.S. holder's United States federal income tax liability provided the required information is timely furnished to the Internal Revenue Service.

Additional Withholding Requirements

Under recently enacted legislation and administrative guidance, referred to as the Foreign Account Tax Compliance Act, or FATCA, the relevant withholding agent may be required to withhold 30% of any dividends paid after December 31, 2013 and the proceeds of a sale of our common stock occurring after December 31, 2016 paid to (i) a foreign financial institution unless such foreign financial institution agrees to verify, report and disclose its U.S. accountholders and meets certain other specified requirements, or otherwise qualifies for an exemption from these rules, or (ii) a non-financial foreign entity that is the beneficial owner of the payment unless such entity certifies that it does not have any substantial United States owners or provides the name, address and taxpayer identification number of each substantial United States owner and such entity meets certain other specified requirements, or otherwise qualifies for an exemption from these rules.

Table of Contents

UNDERWRITING

Under the terms of an underwriting agreement which will be filed under a Form 8-K, Morgan Stanley & Co. LLC is acting as underwriter and has agreed to purchase from the selling stockholders all shares of common stock offered pursuant to this offering.

The underwriting agreement provides that the underwriter's obligation to purchase shares of common stock depends on the satisfaction of the conditions contained in the underwriting agreement, including:

- the obligation to purchase all of the selling stockholders' shares of common stock offered hereby if any of the shares are purchased;
- the representations and warranties made by us and the selling stockholders to the underwriter are true;
- there is no material change in the financial markets; and
- we and the selling stockholders deliver customary closing documents to the underwriter.

The offering of the shares by the underwriter is subject to receipt and acceptance and subject to the underwriter's right to reject any order in whole or in part.

The underwriter proposes to offer our shares of common stock from time to time for sale in one or more transactions on the NYSE, in the over-the-counter market, through negotiated transactions or otherwise at market prices prevailing at the time of sale, at prices related to prevailing market prices or at negotiated prices, subject to receipt and acceptance by them and subject to their right to reject any order in whole or in part. In connection with the sale of our shares of common stock offered hereby, the underwriter may be deemed to have received compensation in the form of underwriting discounts. The underwriter may effect such transactions by selling our shares of common stock to or through dealers, and such dealers may receive compensation in the form of discounts or commissions from the underwriter and/or purchasers of our shares of common stock for whom they may act as agents or to whom they may sell as principals.

Expenses

We will pay the expenses of this offering, other than underwriting discounts and commissions (which will be paid by the selling stockholders). We estimate our offering expenses to be approximately $400,000.

Lock-Up Agreements

We have agreed with Morgan Stanley & Co. LLC, subject to certain exceptions, not to directly or indirectly offer, pledge, announce the intention to sell, sell, contract to sell, sell an option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase, or otherwise transfer or dispose of any common stock or any securities which may be converted into or exchanged for any common stock or enter into any swap or other agreement that transfers, in whole or in part, any of the economic consequences of ownership of the common stock for a period of 45 days from the date of this prospectus supplement except with prior written consent of Morgan Stanley & Co. LLC.

Indemnification

We and the selling stockholders have agreed to indemnify the underwriter against liabilities relating to this offering, including liabilities under the Securities Act, and to contribute to payments that the underwriter may be required to make for these liabilities.

Table of Contents

Stabilization, Short Positions and Penalty Bids

The underwriter may engage in stabilizing transactions, covering transactions or purchases for the purpose of pegging, fixing or maintaining the price of the common stock, in accordance with Regulation M under the Securities Exchange Act of 1934, as amended (the "Exchange Act"):

Stabilizing transactions permit bids to purchase the underlying security so long as the stabilizing bids do not exceed a specified maximum.

Covering transactions involve purchases of the common stock in the open market after the distribution has been completed in order to cover short positions.

These stabilizing transactions and covering transactions may have the effect of raising or maintaining the market price of our common stock or preventing or retarding a decline in the market price of the common stock. As a result, the price of the common stock may be higher than the price that might otherwise exist in the open market. These transactions may be effected on the NYSE or otherwise and, if commenced, may be discontinued at any time.

Neither we nor the underwriter make any representation or prediction as to the direction or magnitude of any effect that the transactions described above may have on the price of the common stock. In addition, neither we nor the underwriter make any representation that the underwriter will engage in these stabilizing transactions or that any transaction, once commenced, will not be discontinued without notice.

Stamp Taxes

If you purchase shares of common stock offered in this prospectus supplement, you may be required to pay stamp taxes and other charges under the laws and practices of the country of purchase, in addition to the offering price listed on the cover page of this prospectus supplement.

Electronic Distribution

A prospectus supplement in electronic format may be made available on Internet sites or through other online services maintained by the underwriter and/or selling group members, if any, participating in this offering, or by their affiliates. In those cases, prospective investors may view the prospectus supplement online and, depending upon the particular underwriter or selling group member, if any, prospective investors may be allowed to place orders online. The underwriter may agree with us to allocate a specific number of shares for sale to online brokerage account holders. Any such allocation for online distributions will be made by the underwriter on the same basis as other allocations. In addition, the underwriter may distribute prospectuses electronically.

Other than the prospectus supplement in electronic format, information on the underwriter or selling group member's website and any information contained in any other website maintained by the underwriter or selling group member, if any, is not part of this prospectus supplement, the accompanying prospectus or the registration statement of which these prospectus supplement and accompanying prospectus form a part, has not been approved and/or endorsed by us or the underwriter or selling group member, if any, in its capacity as underwriter or selling group member and should not be relied on by investors.

Other Relationships

Morgan Stanley & Co. LLC and its respective affiliates are full service financial institutions engaged in various activities, which may include securities trading, commercial and investment banking, financial advisory, investment management, investment research, principal investment, hedging, financing and brokerage activities. Morgan Stanley & Co. LLC and its affiliates have performed and may in the future perform various commercial banking, investment banking and advisory services for us

Table of Contents

from time to time for which they have received or may in the future receive customary fees and expenses.

In the ordinary course of their various business activities, Morgan Stanley & Co. LLC and its affiliates may make or hold a broad array of investments and actively trade debt and equity securities (or related derivative securities) and financial instruments (including bank loans) for their own account and for the accounts of their customers, and such investment and securities activities may involve securities and/or instruments of the Company. Morgan Stanley & Co. LLC and its affiliates may also make investment recommendations and/or publish or express independent research views in respect of such securities or instruments and may at any time hold, or recommend to clients that they acquire, long and/or short positions in such securities and instruments.

Selling Restrictions

European Economic Area

In relation to each member state of the European Economic Area that has implemented the Prospectus Directive (each, a relevant member state), with effect from and including the date on which the Prospectus Directive is implemented in that relevant member state (the relevant implementation date), an offer of common stock described in this prospectus may not be made to the public in that relevant member state prior to the publication of a prospectus in relation to our common stock that has been approved by the competent authority in that relevant member state or, where appropriate, approved in another relevant member state and notified to the competent authority in that relevant member state, all in accordance with the Prospectus Directive, except that, with effect from and including the relevant implementation date, an offer of securities may be offered to the public in that relevant member state at any time:

to any legal entity that is authorized or regulated to operate in the financial markets or, if not so authorized or regulated, whose corporate purpose is solely to invest in securities; or

to any legal entity that has two or more of (1) an average of at least 250 employees during the last financial year, (2) a total balance sheet of more than €43,000,000 and (3) an annual net turnover of more than €50,000,000, as shown in its last annual or consolidated accounts; or

to fewer than 100 or, if the Relevant Member State has implemented the relevant provision of the 2010 PD Amending Directive, 150, natural or legal persons (other than qualified investors as defined in the Prospectus Directive) subject to obtaining the prior consent of the underwriter for any such offer; or in any other circumstances that do not require the publication of a prospectus pursuant to Article 3 of the Prospectus Directive.

Each purchaser of common stock described in this prospectus located within a relevant member state will be deemed to have represented, acknowledged and agreed that it is a "qualified investor" within the meaning of Article 2(1)(e) of the Prospectus Directive.

For purposes of this provision, the expression an "offer to the public" in any relevant member state means the communication in any form and by any means of sufficient information on the terms of the offer and the securities to be offered so as to enable an investor to decide to purchase or subscribe the securities, as the expression may be varied in that member state by any measure implementing the Prospectus Directive in that member state, and the expression "Prospectus Directive" means Directive 2003/71/EC (including the 2010 PD Amending Directive, to the extent implemented in the Relevant Member State) and includes any relevant implementing measure in each relevant member state, and the expression "2010 PD Amending Directive" means Directive 2010/73/EU.

The sellers of our common stock have not authorized and do not authorize the making of any offer of common stock through any financial intermediary on their behalf, other than offers made by the underwriter with a view to the final placement of our common stock as contemplated in this

Table of Contents

prospectus. Accordingly, no purchaser of our common stock, other than underwriter, is authorized to make any further offer of our common stock on behalf of the sellers or the underwriter.

The underwriter has represented and agreed that:

(a) it has only communicated or caused to be communicated and will only communicate or cause to be communicated an invitation or inducement to engage in investment activity (within the meaning of Section 21 of the Financial Services and Markets Act 2000 (the "FSMA")) received by it in connection with the issue or sale of the shares in circumstances in which Section 21(1) of the FSMA would not, if the issuer was not an authorized person, apply to the issuer; and

(b) it has complied and will comply with all applicable provisions of the FSMA with respect to anything done by it in relation to the shares in, from or otherwise involving the United Kingdom.

Hong Kong

The shares may not be offered or sold by means of any document other than (i) in circumstances which do not constitute an offer to the public within the meaning of the Companies Ordinance (Cap.32, Laws of Hong Kong), or (ii) to "professional investors" within the meaning of the Securities and Futures Ordinance (Cap.571, Laws of Hong Kong) and any rules made thereunder, or (iii) in other circumstances which do not result in the document being a "prospectus" within the meaning of the Companies Ordinance (Cap.32, Laws of Hong Kong), and no advertisement, invitation or document relating to the shares may be issued or may be in the possession of any person for the purpose of issue (in each case whether in Hong Kong or elsewhere), which is directed at, or the contents of which are likely to be accessed or read by, the public in Hong Kong (except if permitted to do so under the laws of Hong Kong) other than with respect to shares which are or are intended to be disposed of only to persons outside Hong Kong or only to "professional investors" within the meaning of the Securities and Futures Ordinance (Cap. 571, Laws of Hong Kong) and any rules made thereunder.

Singapore

This prospectus supplement has not been registered as a prospectus with the Monetary Authority of Singapore. Accordingly, this prospectus supplement and any other document or material in connection with the offer or sale, or invitation for subscription or purchase, of the shares may not be circulated or distributed, nor may the shares be offered or sold, or be made the subject of an invitation for subscription or purchase, whether directly or indirectly, to persons in Singapore other than (i) to an institutional investor under Section 274 of the Securities and Futures Act, Chapter 289 of Singapore (the "SFA"), (ii) to a relevant person, or any person pursuant to Section 275(1A), and in accordance with the conditions, specified in Section 275 of the SFA or (iii) otherwise pursuant to, and in accordance with the conditions of, any other applicable provision of the SFA.

Where the shares are subscribed or purchased under Section 275 by a relevant person which is: (a) a corporation (which is not an accredited investor) the sole business of which is to hold investments and the entire share capital of which is owned by one or more individuals, each of whom is an accredited investor; or (b) a trust (where the trustee is not an accredited investor) whose sole purpose is to hold investments and each beneficiary is an accredited investor, shares, debentures and units of shares and debentures of that corporation or the beneficiaries' rights and interest in that trust shall not be transferable for 6 months after that corporation or that trust has acquired the shares under Section 275 except: (1) to an institutional investor under Section 274 of the SFA or to a relevant person, or any person pursuant to Section 275(1A), and in accordance with the conditions, specified in Section 275 of the SFA; (2) where no consideration is given for the transfer; or (3) by operation of law.

Table of Contents

Japan

The securities have not been and will not be registered under the Financial Instruments and Exchange Law of Japan (the Financial Instruments and Exchange Law) and the underwriter has agreed that it will not offer or sell any securities, directly or indirectly, in Japan or to, or for the benefit of, any resident of Japan (which term as used herein means any person resident in Japan, including any corporation or other entity organized under the laws of Japan), or to others for re-offering or resale, directly or indirectly, in Japan or to a resident of Japan, except pursuant to an exemption from the registration requirements of, and otherwise in compliance with, the Financial Instruments and Exchange Law and any other applicable laws, regulations and ministerial guidelines of Japan.

Table of Contents

VALIDITY OF THE SHARES

Simpson Thacher & Bartlett LLP, New York, New York, will pass upon the validity of the common stock being offered hereby. Certain legal matters will be passed upon for the underwriter by Latham & Watkins LLP, New York, New York. Certain partners of Simpson Thacher & Bartlett LLP, members of their families, related persons and others have an indirect interest in our common stock, through limited partnerships who are investors in certain affiliates of KKR that hold shares of our common stock. Certain partners of Latham & Watkins LLP, members of their families, related persons and others have an indirect interest in our common stock through limited partnerships that are investors in certain affiliates of KKR that hold shares of our common stock.

EXPERTS

The consolidated financial statements, incorporated in this prospectus supplement by reference from the Company's Current Report on Form 8-K filed on September 18, 2012, and the related financial statement schedule, incorporated by reference from the Company's Annual Report on Form 10-K for the year ended December 31, 2011, and the effectiveness of the Company's internal control over financial reporting have been audited by Deloitte & Touche LLP, an independent registered public accounting firm, as stated in their reports, which are incorporated herein by reference. Such reports (1) express an unqualified opinion on the consolidated financial statements and the related financial statement schedule and includes an explanatory paragraph regarding Rockwood Holdings, Inc. and Subsidiaries' adoption of FASB Accounting Standards Update No. 2011-05, *Comprehensive Income (Topic 220) Presentation of Comprehensive Income*, and the retrospective adjustments for a change in the composition of reportable segments, the related allocation of goodwill and restructuring charges, and for the inclusion of certain guarantor information; and (2) express an unqualified opinion on the effectiveness of internal control over financial reporting. Such financial statements and financial statement schedule have been so incorporated in reliance upon the reports of such firm given upon their authority as experts in accounting and auditing.

Table of Contents

INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

The Commission allows us to "incorporate by reference" the information contained in documents that we file with them, which means that we can disclose important information to you by referring you to those documents. The information incorporated by reference is considered to be part of this prospectus supplement. Information in this prospectus supplement supersedes information incorporated by reference that we filed with the Commission prior to the date of this prospectus supplement, while information that we file later with the Commission will automatically update and supersede this information. We incorporate by reference the documents listed below and any future filings we will make with the Commission under Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act after the date of this prospectus supplement:

our annual report on Form 10-K for the year ended December 31, 2011 (including the portions of our proxy statement on Schedule 14A for our 2012 annual meeting of stockholders filed with the SEC on April 4, 2012 that are incorporated by reference therein), except with respect to Items 1, 6, 7 and 8 which have been superseded by our current report on Form 8-K filed on September 18, 2012 that relate solely to (i) the presentation of segment specific disclosures on a basis consistent with our realigned segment reporting structure, (ii) the addition of certain guarantor information and (iii) the addition of consolidated statements of comprehensive income, and have no effect on our previously reported results of operations, financial condition, or cash flows;

our quarterly reports on Form 10-Q for the quarters ended March 31, 2012, June 30, 2012 and September 30, 2012;

our current reports on Form 8-K filed on February 24, 2012, May 18, 2012, June 5, 2012 (two Form 8-K filings), June 11, 2012, August 27, 2012, September 18, 2012 and September 25, 2012 (two Form 8-K filings); and

the description of our common stock contained in our registration statement on Form 8-A filed on August 15, 2005.

We will provide to each person to whom a prospectus supplement is delivered, including any beneficial owner, upon request, a copy of any or all of the information that has been incorporated by reference in this prospectus supplement. You may request a copy of these filings at no cost, by writing or calling us at:

Rockwood Holdings, Inc.
100 Overlook Center
Princeton, New Jersey 08540
Attention: Senior Vice President, Law & Administration

You should read the information relating to us in this prospectus supplement together with the information in the documents incorporated by reference. Nothing contained herein shall be deemed to incorporate information furnished to, but not filed with, the Commission.

Table of Contents

PROSPECTUS

Common Stock

We and/or a selling stockholder or selling stockholders may offer and sell shares of our common stock from time to time in amounts, at prices and on terms that will be determined at the time of any such offering. Each time our common stock is offered, we will provide a prospectus supplement and attach it to this prospectus. The prospectus supplement may also add, update or change the information contained in this prospectus. This prospectus may not be used to offer or sell securities without a prospectus supplement describing the method and terms of the offering.

You should carefully read this prospectus and the accompanying prospectus supplement, together with the documents we incorporate by reference, before you invest in our securities.

Our common stock is listed on the New York Stock Exchange under the symbol "ROC."

Investing in our securities involves risks. See "Risk Factors" beginning on page 4.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or passed upon the accuracy or adequacy of this prospectus. Any representation to the contrary is a criminal offense.

December 20, 2010

TABLE OF CONTENTS

	Page
About this Prospectus	i
Our Company	1
Forward-looking Statements	2
Risk Factors	4
Use of Proceeds	4
Description of Our Capital Stock	4
Plan of Distribution	8
Legal Matters	10
Experts	10
Where You Can Find Additional Information	10
Incorporation of Certain Information By Reference	10

ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement on Form S-3 that we filed with the Securities and Exchange Commission, or the "Commission," using a "shelf" registration process. Under this shelf registration process, we and/or a selling stockholder or selling stockholders may offer and sell from time to time securities in one or more offerings or resales. Each time securities are offered, we will provide a supplement to this prospectus that contains specific information about the offering and attach it to this prospectus. The prospectus supplement will contain more specific information about the offering, including the names of any selling stockholder(s), if applicable. The prospectus supplement may also add, update or change information contained in this prospectus. You should read this prospectus and any applicable prospectus supplement together with the additional information described under the heading "Where You Can Find Additional Information."

You should rely only on the information contained or incorporated by reference in this prospectus and the accompanying supplement or any free writing prospectus prepared by us. We have not authorized any other person to provide you with different information. If anyone provides you with different or inconsistent information, you should not rely on it. We are not making an offer of our securities in any state where the offer is not permitted.

Neither the delivery of this prospectus nor any sale made under it implies that there has been no change in our affairs or that the information in this prospectus is correct as of any date after the date of this prospectus. You should not assume that the information in this prospectus, including any information incorporated in this prospectus by reference, the accompanying prospectus supplement or any free writing prospectus prepared by us, is accurate as of any date other than the date on the front of those documents. Our business, financial condition, results of operations and prospects may have changed since that date.

Unless we indicate otherwise or the context otherwise requires, any references to "we," "our," "us," the "Company" or "Rockwood" refer to Rockwood Holdings, Inc. and its consolidated subsidiaries.

Table of Contents

OUR COMPANY

Rockwood is a global developer, manufacturer and marketer of high value-added specialty chemicals and advanced materials used for industrial and commercial purposes. Rockwood is focused on surface treatment and lithium chemicals; advanced ceramics, titanium dioxide pigments, specialty compounds, iron-oxide pigments, timber-treatment chemicals and clay-based additives.

Our products consist primarily of inorganic chemicals and solutions and engineered materials. They are often customized to meet the complex needs of our customers and to enhance the value of their end products by improving performance, providing essential product attributes, lowering costs and/or making them more environmentally friendly. We generally compete in niche markets in a wide range of end-use markets, including metal treatment and general industry, chemicals and plastics, construction, life sciences (including pharmaceutical and medical markets), automotive, specialty coatings and electronics and telecommunications. No single end-use market accounted for more than 17% of our 2009 net sales.

We have a number of growth businesses, such as our Fine Chemicals and Advanced Ceramics businesses, which are complemented by a diverse portfolio of businesses that historically have generated stable revenues. Our high margins, diverse customer and end-use market base, capital discipline and ongoing productivity improvements provide us with a platform to capitalize on market growth opportunities.

We operate globally, manufacturing our products in 87 facilities in 24 countries and selling our products and providing our services to more than 60,000 customers, including some of the world's preeminent companies. We believe our products are generally critical to our customers' products' performance, but account for a small percentage of the total cost of their products. No single customer accounted for more than 2% of our 2009 net sales.

We currently operate our business through the following five business segments: (1) Specialty Chemicals; (2) Performance Additives; (3) Titanium Dioxide Pigments; (4) Advanced Ceramics and (5) Specialty Compounds. On December 16, 2010, we announced the entry into a definitive agreement to sell substantially all of our Specialty Compounds segment. For financial information about each segment, see Note 3, "Segment Information," in the consolidated financial statements in our annual report on Form 10-K for the year ended December 31, 2009, which is incorporated by reference herein.

Our principal executive offices are located at 100 Overlook Center, Princeton, New Jersey 08540. Our telephone number is (609) 514-0300. Our website address is www.rocksp.com. Information contained on our website is not a part of this prospectus.

Table of Contents

FORWARD-LOOKING STATEMENTS

This document contains forward-looking statements. Forward-looking statements within the context of the Private Securities Litigation Reform Act of 1995 are not statements of historical fact and may involve a number of risks and uncertainties. Forward-looking statements give our current expectations or forecasts of future events and estimates of amounts not yet determinable. We have used the words "anticipate," "estimate," "expect," "project," "intend," "plan," "believe," "predict," "could," "may" and other words and terms of similar meaning, including references to assumptions, in this report to identify forward-looking statements. These forward-looking statements are made based on expectations and beliefs concerning future events affecting us and are subject to uncertainties and factors relating to our operations and business environment, all of which are difficult to predict and many of which are beyond our control, that could cause our actual results to differ materially from those expressed in or implied by these forward-looking statements. In particular, these factors include, among other things:

our business strategy;

changes in the general economic conditions in North America and Europe and in other locations in which we currently do business;

competitive pricing or product development activities affecting demand for our products;

technological changes affecting production of our materials;

fluctuations in interest rates, exchange rates and currency values;

availability and pricing of raw materials;

governmental and environmental regulations and changes in those regulations;

fluctuations in energy prices;

changes in the end-use markets in which our products are sold;

our ability to access capital markets;

hazards associated with chemicals manufacturing;

our high level of indebtedness;

risks associated with negotiating, consummating and integrating acquisitions;

risks associated with competition and the introduction of new competing products, especially in the Asia-Pacific region; and

risks associated with international sales and operations.

You should keep in mind that any forward-looking statements made by us in this prospectus or elsewhere speak only as of the date on which we make them. New risks and uncertainties come up from time to time, and it is impossible for us to predict these events or how they may affect us. We disclaim any obligation to update or revise any forward-looking statements, whether as a result of new information, future events or otherwise.

Table of Contents

Although data regarding the specialty chemicals industry, our end-use markets, our market position and market share within our industry and our end-use markets are inherently imprecise, we believe such data are generally reliable. Industry surveys and publications generally state that the information contained therein has been obtained from sources believed to be reliable. We have not independently verified any of the data from third party sources. Similarly, while we believe internal company surveys and management estimates to be reliable, we have not verified them, nor have they been verified by any independent source. While we are not aware of any misstatements regarding any industry data presented herein, estimates, in particular as they relate to general expectations concerning the specialty chemicals industry, involve risks and uncertainties and are subject to change based on various factors, including those discussed under the captions "Risk Factors" and "Forward-Looking Statements" in this prospectus.

Table of Contents

RISK FACTORS

An investment in our securities involves risks. You should carefully consider each of the risks described in the section entitled "Risk Factors" in our annual report on Form 10-K for the fiscal year ended December 31, 2009, filed with the SEC on February 26, 2010, as such factors may be updated from time to time in our periodic filings with the SEC, which are accessible on the SEC's website at www.sec.gov, and all of the other information included or incorporated by reference in this prospectus before deciding to purchase any common stock.

USE OF PROCEEDS

In the case of a sale of our common stock by us, the use of proceeds will be specified in the applicable prospectus supplement. In the case of a sale of our common stock by any selling stockholder(s), we will not receive the proceeds from such sale.

DESCRIPTION OF OUR CAPITAL STOCK

The following is a description of the material terms of our amended and restated certificate of incorporation and bylaws. We also refer you to our amended and restated certificate of incorporation and bylaws, which are incorporated by reference in the registration statement.

Authorization Capitalization

As of the date of this prospectus, our authorized capital stock consists of:

400,000,000 shares of common stock, par value $.01 per share; and

50,000,000 shares of preferred stock, par value $.01 per share.

As of December 1, 2010, there were 75,776,884 shares of our common stock outstanding and 83 holders of record of our common stock.

Common Stock

Voting Rights. Holders of common stock are entitled to one vote per share on all matters submitted for action by the stockholders. The holders of common stock do not have cumulative voting rights in the election of directors. Accordingly, the holders of more than 50% of the shares of common stock can, if they choose to do so, elect all the directors. In such event, the holders of the remaining shares of common stock will not be able to elect any directors.

Dividend Rights. Holders of common stock are entitled to receive ratably dividends if, as and when dividends are declared from time to time by our board of directors out of funds legally available for that purpose, after payment of dividends required to be paid on outstanding preferred stock, if any. Our senior secured credit facilities and indenture impose restrictions on our ability to declare dividends on our common stock.

Liquidation Rights. Upon our liquidation, dissolution or winding up, any business combination or a sale or disposition of all or substantially all of our assets, the holders of common stock are entitled to receive ratably the assets available for distribution to the stockholders after payment of liabilities and accumulated and unpaid dividends and liquidation preferences on outstanding preferred stock, if any.

Other Matters. Holders of common stock have no preemptive or conversion rights and are not subject to further calls or assessment by us. There are no redemption or sinking fund provisions applicable to our common stock. All outstanding shares of our common stock, including the shares of common stock offered in this offering, are fully paid and non-assessable.

Table of Contents

Preferred Stock

Our amended and restated certificate of incorporation authorizes our board of directors to establish one or more series of preferred stock. Unless required by law or by any stock exchange on which our common stock is listed, the authorized shares of preferred stock will be available for issuance without further action by you. Our board of directors is able to determine, with respect to any series of preferred stock, the terms and rights of that series including:

- the designation of the series;
- the number of shares of the series, which our board may, except where otherwise provided in the preferred stock designation, increase or decrease, but not below the number of shares then outstanding;
- whether dividends, if any, will be cumulative or non-cumulative and the dividend rate of the series;
- the dates at which dividends, if any, will be payable;
- the redemption rights and price or prices, if any, for shares of the series;
- the terms and amounts of any sinking fund provided for the purchase or redemption of shares of the series;
- the amounts payable on shares of the series in the event of any voluntary or involuntary liquidation, dissolution or winding-up of the affairs of our company;
- whether the shares of the series will be convertible into shares of any other class or series, or any other security, of our company or any other corporation, and, if so, the specification of the other class or series or other security, the conversion price or prices or rate or rates, any rate adjustments, the date or dates as of which the shares will be convertible and all other terms and conditions upon which the conversion may be made;
- restrictions on the issuance of shares of the same series or of any other class or series; and
- the voting rights, if any, of the holders of the series.

Warrants

In connection with the issuance in July 2003 of redeemable convertible preferred stock which was redeemed with a portion of the net proceeds of our initial public offering, we issued to an affiliate of KKR warrants, exercisable at any time at a specified exercise price, to purchase 958,315 additional shares of our common stock. The warrants expire July 23, 2013.

Anti-Takeover Effects of our Amended and Restated Certificate of Incorporation and Bylaws and Certain Provisions of Delaware Law

Our amended and restated certificate of incorporation and amended and restated bylaws contain provisions that may have an anti-takeover effect. Provisions of Delaware law may have similar effects.

Classified Board of Directors

Our amended and restated certificate of incorporation provides that our board of directors is divided into three classes of directors, with the classes to be as nearly equal in number as possible. The members of each class serve for a three-year term. As a result, approximately one-third of our board of directors will be elected each year.

Table of Contents

Removal of Directors, Vacancies

Our amended and restated certificate of incorporation and our amended and restated bylaws provide that directors may be removed only for cause and only upon the affirmative vote of at least 80% of the voting power of all the then outstanding shares of stock entitled to vote generally in the election of directors, voting together as a single class. In addition, our amended and restated certificate of incorporation and our amended and restated bylaws provide that any vacancies on our board of directors will be filled only by the affirmative vote of a majority of the remaining directors, although less than a quorum.

No Stockholder Action by Written Consent

Delaware law permits stockholder action by written consent unless otherwise provided by the amended and restated certificate of incorporation. Our amended and restated certificate of incorporation precludes stockholder action by written consent.

Calling of Special Meetings of Stockholders

Our amended and restated bylaws provide that special meetings of our stockholders may be called only by our board of directors, our chief executive officer or the chairman of our board of directors.

Advance Notice Requirements for Stockholder Proposals and Director Nominations

Our amended and restated bylaws provide that stockholders seeking to bring business before an annual meeting of stockholders or nominate candidates for election as directors must provide timely notice of their proposal in writing to the corporate secretary. Generally, to be timely, a stockholder's notice must be received at our principal executive offices not less than 90 nor more than 120 days prior to the first anniversary of the previous year's annual meeting. Our amended and restated bylaws also specify requirements as to the form and content of a stockholder's notice.

No Cumulative Voting

Delaware law provides that stockholders are not entitled to the right to cumulative votes in the election of directors unless our amended and restated certificate of incorporation provides otherwise. Our amended and restated certificate of incorporation does not expressly provide for cumulative voting.

Supermajority Provisions

Delaware law provides generally that the affirmative vote of a majority of the outstanding shares entitled to vote is required to amend a corporation's certificate of incorporation or bylaws, unless the certificate of incorporation requires a greater percentage. Our amended and restated certificate of incorporation provides that the amended and restated bylaws may be amended only by a vote of at least 80% of the voting power of all of the outstanding shares of our stock entitled to vote in the election of directors, voting together as a single class. In addition, a vote of at least 80% of the voting power of all of the outstanding shares of our stock entitled to vote in the election of directors, voting as a single class, is required to amend certain provisions of our certificate of incorporation relating to actions by stockholders by written consent, board membership, limited liability of directors and indemnification of directors, officers, employees and agents, and amendment of our certificate of incorporation.

Authorized but Unissued Capital Stock

The Delaware General Corporation Law does not require stockholder approval for any issuance of authorized shares. However, the listing requirements of the New York Stock Exchange, which would

Table of Contents

apply so long as our common stock were listed on the New York Stock Exchange, require stockholder approval of certain issuances equal to or exceeding 20% of the then outstanding voting power or then outstanding number of shares of common stock. These additional shares may be used for a variety of corporate purposes, including future public offerings, to raise additional capital or to facilitate acquisitions.

One of the effects of the existence of unissued and unreserved common stock or preferred stock may be to enable our board of directors to issue shares to persons friendly to current management, which issuance could render more difficult or discourage an attempt to obtain control of our company by means of a merger, tender offer, proxy contest or otherwise, and consequently protect the continuity of our management and possibly deprive the stockholders of opportunities to sell their shares of common stock at prices higher than prevailing market prices.

Delaware Anti-Takeover Statute

We are subject to Section 203 of the Delaware General Corporation Law. Subject to specific exceptions, Section 203 prohibits a publicly held Delaware corporation from engaging in a "business combination" with an "interested stockholder" for a period of three years after the date of the transaction in which the person became an interested stockholder, unless:

- the "business combination," or the transaction in which the stockholder became an "interested stockholder" is approved by the board of directors prior to the date the "interested stockholder" attained that status;
- upon consummation of the transaction that resulted in the stockholder becoming an "interested stockholder," the "interested stockholder" owned at least 85% of the voting stock of the corporation outstanding at the time the transaction commenced (excluding for purposes of determining the voting stock outstanding and not outstanding, voting stock owned by the interested stockholder, those shares owned by persons who are directors and also officers, and employee stock plans in which employee participants do not have the right to determine confidentiality whether shares held subject to the plan will be tendered in a tender or exchange offer); or
- on or subsequent to the date a person became an "interested stockholder," the "business combination" is approved by the board of directors and authorized at an annual or special meeting of stockholders by the affirmative vote of at least two-thirds of the outstanding voting stock that is not owned by the "interested stockholder."

"Business combinations" include mergers, asset sales and other transactions resulting in a financial benefit to the "interested stockholder." Subject to various exceptions, an "interested stockholder" is a person who, together with his or her affiliates and associates, owns, or within three years did own, 15% or more of the corporation's outstanding voting stock. These restrictions could prohibit or delay the accomplishment of mergers or other takeover or change in control attempts with respect to us and, therefore, may discourage attempts to acquire us.

Transfer Agent and Registrar

American Stock Transfer & Trust Company is the transfer agent and registrar for our common stock.

Listing

Our common stock is listed on the New York Stock Exchange under the symbol "ROC."

Table of Contents

PLAN OF DISTRIBUTION

We and/or a selling stockholder or selling stockholders may sell our common stock from time to time in any of the following ways:

- through underwriters or dealers;
- directly to a limited number of purchasers or to a single purchaser; or
- through agents.

The prospectus supplement will set forth the terms of the offering of our common stock, including:

- the name or names of any underwriters, dealers or agents and the number of shares of our common stock underwritten or purchased by each of them; and
- the public offering price of a share of our common stock and the proceeds to us and/or the selling stockholder(s), if applicable, and any discounts, commissions or concessions allowed or reallowed or paid to dealers.

Any public offering price and any discounts or concessions allowed or reallowed or paid to dealers may be changed from time to time.

We and/or the selling stockholder(s), if applicable, may affect the distribution of the shares from time to time in one or more transactions either:

- at a fixed price or at prices that may be changed;
- at market prices prevailing at the time of the sale;
- at prices relating to such prevailing market prices; or
- at negotiated prices.

Transactions through dealers may include block trades in which dealers will attempt to sell our common stock as agent but may position and resell the block as principal to facilitate the transaction. Our common stock may be sold through dealers or agents or to dealers acting as market makers.

If underwriters are used in the sale of any shares of our common stock, the shares will be acquired by the underwriters for their own account and may be resold from time to time in one or more transactions, including negotiated transactions, at a fixed public offering price or at varying prices determined at the time of sale. The shares of our common stock may be either offered to the public through underwriting syndicates represented by managing underwriters, or directly by underwriters. Generally, the underwriters' obligations to purchase the shares of our common stock will be subject to certain conditions precedent. The underwriters will be obligated to purchase all of the shares of our common stock if they purchase any of the shares (other than any shares purchased upon exercise of any over-allotment option).

We and/or a selling stockholder or selling stockholders may sell our common stock through agents from time to time. The prospectus supplement will name any agent involved in the offer or sale of the shares and any commissions paid to them. Generally, any agent will be acting on a best efforts basis for the period of its appointment.

The underwriter proposes to offer our shares of common stock from time to time for sale in one or more transactions on the NYSE, in the over-the-counter market, through negotiated transactions or otherwise at market prices prevailing at the time of sale, at prices related to prevailing market prices or at negotiated prices, subject to receipt and acceptance by them and subject to their right to reject any order in whole or in part.

Any underwriters, broker-dealers and agents that participate in the distribution of our common stock may be deemed to be "underwriters" as defined in the Securities Act. Any commissions paid or

Table of Contents

any discounts or concessions allowed to any such persons, and any profits they receive on resale of the shares of our common stock, may be deemed to be underwriting discounts and commissions under the Securities Act. We will identify any underwriters or agents and describe their compensation in the prospectus supplement.

Our common stock may be sold on any national securities exchange on which the shares may be listed at the time of sale, in the over-the-counter market or in transactions otherwise than on such exchanges or in the over-the-counter market or in transactions that include special offerings and exchange distributions pursuant to and in accordance with the rules of such exchanges.

We or a selling stockholder may enter into derivative transactions or forward sale agreements on the shares with third parties. In such event, we or such selling stockholder, if applicable, may pledge the shares underlying such transactions to the counterparties under such agreements, to secure our or such selling stockholder's delivery obligations. The counterparties or third parties may borrow shares from us, such selling stockholder or third parties and sell such shares in a public offering. This prospectus may be delivered in conjunction with such sales. Upon settlement of such transactions, we and/or such selling stockholder, if applicable, may deliver shares to the counterparties that, in turn, the counterparties may deliver to us, such selling stockholder or third parties, as the case may be, to close out the open borrowings of shares. The counterparty in such transactions will be an underwriter and will be identified in the prospectus supplement.

A prospectus supplement may be used for resales from time to time by any holder of our common stock that may acquire shares upon an in-kind distribution by any existing holder of all or a portion of such existing holder's shares to its limited and general partners. Such selling stockholder may include direct and indirect transferees, pledgees, donees and successors of a selling stockholder. Further, a prospectus supplement may be used in connection with sales or resales by any general partner of a selling stockholder in connection with sales by such general partner for cash or subsequent transfers by such general partner to its limited partners of their ratable portion of the shares then owned by such general partner, together with resales of such shares by such limited partners.

Our common stock is listed on the NYSE under the symbol "ROC." Underwriters or agents may purchase and sell shares of our common stock in the open market. These transactions may include over-allotment, stabilizing transactions, syndicate covering transactions and penalty bids. Over-allotment involves sales in excess of the offering size, which creates a short position. Stabilizing transactions consist of bids or purchases for the purpose of preventing or retarding a decline in the market price of the securities and are permitted so long as the stabilizing bids do not exceed a specified maximum. Syndicate covering transactions involve the placing of any bid on behalf of the underwriting syndicate or the effecting of any purchase to reduce a short position created in connection with the offering. The underwriters or agents also may impose a penalty bid, which permits them to reclaim selling concessions allowed to syndicate activities that may stabilize, maintain or otherwise affect the market price of the securities, which may be higher than the price that might otherwise prevail in the open market. These activities, if begun, may be discontinued at any time. These transactions may be effected on any exchange on which the securities are traded, in the over-the-counter market or otherwise.

Agents and underwriters may be entitled to indemnification by us and the selling stockholder(s), if applicable, against certain civil liabilities, including liabilities under the Securities Act, or to contribution with respect to payments which the agents or underwriters may be required to make in respect thereof.

Agents and underwriters may be customers of, engage in transactions with, or perform services for us in the ordinary course of business.

The specific terms of the lock-up provisions in respect of any given offering will be described in the prospectus supplement.

Table of Contents

LEGAL MATTERS

The validity of the issuance of shares of our common stock to be sold hereunder will be passed upon for us by Simpson Thacher & Bartlett LLP, New York, New York. Certain partners of Simpson Thacher & Bartlett LLP, members of their families, related persons and others have an indirect interest in our common stock, through limited partnerships who are investors in certain affiliates of KKR that hold shares of our common stock.

EXPERTS

The financial statements and the related financial statement schedule incorporated in this prospectus by reference from our 2009 annual report on Form 10-K for the year ended December 31, 2009, and the effectiveness of our internal control over financial reporting have been audited by Deloitte & Touche LLP, an independent registered public accounting firm, as stated in their reports, which are incorporated herein by reference (which reports (1) express an unqualified opinion on the financial statements and financial statement schedule and (2) express an unqualified opinion on the effectiveness of internal control over financial reporting). Such financial statements and financial statement schedule have been so incorporated in reliance upon the reports of such firm given upon their authority as experts in accounting and auditing.

WHERE YOU CAN FIND ADDITIONAL INFORMATION

We are subject to the informational requirements of the Exchange Act, and, in accordance therewith, file annual, quarterly and current reports, proxy statements and other information with the Commission. Our Commission filings are available to the public over the Internet at the Commission's website at http://www.sec.gov. You may also read and copy any document we file with the Commission at its public reference facility located at 100 F Street, N.E., Washington, D.C. 20549. Please call the Commission at 1-800-SEC-0330 for further information on the public reference room.

Our common stock is listed on the New York Stock Exchange. You may inspect reports and other information concerning us at the offices of the New York Stock Exchange, 20 Broad Street, New York, New York 10005.

In addition, our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and amendments to those reports filed or furnished pursuant to section 13(a) or 15(d) of the Exchange Act are available free of charge through our website at http://www.rocksp.com as soon as reasonably practicable after they are electronically filed with, or furnished to, the Commission. Information contained on our website, however, is not a part of this prospectus.

INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

The Commission allows us to "incorporate by reference" the information contained in documents that we file with them, which means that we can disclose important information to you by referring you to those documents. The information incorporated by reference is considered to be part of this prospectus. Information in this prospectus supersedes information incorporated by reference that we filed with the Commission prior to the date of this prospectus, while information that we file later with the Commission will automatically update and supersede this information. We incorporate by reference the documents listed below and any future filings we will make with the Commission under Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act after the date of this prospectus:

- our annual report on Form 10-K for the year ended December 31, 2009 (including such information from our proxy statement for the 2010 annual meeting of stockholders filed on March 26, 2010 that is incorporated by reference in Part III of such annual report);

Table of Contents

our quarterly reports on Form 10-Q for the quarters ended March 31, 2010, June 30, 2010 and September 30, 2010;

our current reports on Form 8-K filed on March 1, 2010, May 7, 2010, July 30, 2010, November 2, 2010, December 16, 2010 and December 20, 2010; and

the description of our common stock contained in our registration statement on Form 8-A filed on August 15, 2005.

We will provide to each person to whom a prospectus is delivered, including any beneficial owner, upon request, a copy of any or all of the information that has been incorporated by reference in this prospectus. You may request a copy of these filings at no cost, by writing or calling us at:

Rockwood Holdings, Inc.
100 Overlook Center
Princeton, New Jersey 08540
Attention: Senior Vice President, Law & Administration

You should read the information relating to us in this prospectus together with the information in the documents incorporated by reference. Nothing contained herein shall be deemed to incorporate information furnished to, but not filed with, the Commission.