

**UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF COLUMBIA**

UNITED STATES OF AMERICA
U.S. Department of Justice
Antitrust Division
450 Fifth Street, N.W., Suite 8700
Washington, D.C. 20530

Plaintiff,

v.

HERAEUS ELECTRO-NITE CO., LLC
One Summit Square, Suite 100
Langhorne, PA 19047

Defendant.

COMPLAINT

The United States of America, acting under the Attorney General of the United States, brings this civil antitrust action seeking equitable relief to remedy the actual and potential anticompetitive effects of the September 2012 acquisition by Defendant Heraeus Electro-Nite Co., LLC (“Heraeus”) of substantially all of the assets of Midwest Instrument Company, Inc. (“Minco”). The United States alleges as follows:

I. INTRODUCTION

1. In 2012, Defendant Heraeus surveyed the U.S. market for single-use sensors and instruments used to measure and monitor the temperature and chemical composition of molten steel (“S&P”) and found that its once-commanding 85% market share had been reduced to an estimated 60%, while its closest competitor, Minco, had gained substantially, reaching about a 35% share. Consequently, Heraeus decided to restore its “market leadership” in the United

States by acquiring Minco and thereby eliminating Minco's production capacity. The acquisition removed significant head-to-head competition between Minco and Heraeus on price, innovation and service, and created a near-monopoly in the supply of S&I in the United States.

Accordingly, Heraeus' acquisition of Minco's assets was unlawful and violated Section 7 of the Clayton Act, 15 U.S.C. § 18.

2. Nearly 100 million tons of steel were produced in the United States in 2012. Steelmaking is a continuous process during which the chemistry and temperature of each batch of steel must be measured and monitored in order to ensure the quality, reliability, and consistency of the finished steel, as well as the safety and efficiency of the manufacturing operation. S&I products are integral to the steel making process; indeed, steel makers cannot produce steel without using the S&I that is developed, produced and sold by companies such as Heraeus and, previously, Minco. Steel companies also rely on S&I suppliers as virtual partners in the steel-making process.

3. Heraeus became the dominant S&I supplier in the United States after it acquired its main rival, Leeds & Northrup ("L&N"), in 1995.

4. Until the mid-1990s, Minco was a small company that supplied low-end equipment to steel mill chemistry labs. Heraeus' acquisition of L&N left steel mill customers looking for alternatives. As a result, Minco made a strategic decision to enter the high-tech, higher-end of the market and offer customers an alternative to Heraeus. Over a period of years, Minco slowly gained market share by offering superior customer service and innovation. In 2010, as the steel industry recovered from the economic downturn, Minco sales increased significantly when it introduced user-friendly, innovative products, such as a combination 3-in-1

sensor and a wireless transmitter. By 2012, Minco's market share had increased to 35%, while Heraeus' market share had decreased to about 60%.

5. Given the competitive threat presented by Minco, Heraeus' parent company determined in July 2012 that the acquisition of Minco presented the "[o]ppportunity to improve and defend [Heraeus'] position in the North American market."

6. Accordingly, Heraeus acquired substantially all of Minco's assets on September 7, 2012. The transaction was not reportable under the filing thresholds of the Hart-Scott-Rodino Antitrust Improvements Act of 1976 and therefore was not subject to antitrust review prior to being consummated. Instead, the transaction was brought to the attention of the United States Department of Justice after the fact by customers concerned that the acquisition of Minco by Heraeus substantially lessened competition in the S&I market in the United States.

II. PARTIES TO THE TRANSACTION

7. Defendant Heraeus, a Delaware corporation with its headquarters in Langhorne, Pennsylvania, is a subsidiary of Heraeus Electro-Nite International N.V. ("HEN"), a Belgian company, which itself is a subsidiary of Heraeus Holding GmbH, a privately held German corporation based in Hanau, Germany. HEN's U.S. subsidiary Heraeus had approximately \$92 million in revenue in fiscal year 2011.

8. Prior to being acquired by Heraeus, Minco was a privately held company headquartered in Hartland, Wisconsin that sold S&I. In 2011, Minco's U.S. revenues were approximately \$29 million. Minco's manufacturing facilities were located in Hartland, Wisconsin, Johnson City, Tennessee and Monterrey, Mexico.

9. On September 7, 2012, Heraeus and Minco completed a \$42 million asset sale whereby Heraeus acquired all of Minco's business engaged in the development, production, sale,

and service of S&I in the United States and certain other countries, including Canada, Brazil and Australia.

III. JURISDICTION AND VENUE

10. The United States brings this action against Defendant Heraeus under Section 15 of the Clayton Act, 15 U.S.C. § 25, as amended, to prevent and restrain Heraeus from continuing to violate Section 7 of the Clayton Act, 15 U.S.C. § 18.

11. Heraeus sells S&I in the flow of interstate commerce, and its development, production, sale, and service of S&I substantially affects interstate commerce. This Court has subject matter jurisdiction over this action and over Heraeus pursuant to Section 15 of the Clayton Act, 15 U.S.C. § 25, 28 U.S.C. §§ 1331 and 1337(a) and 1345.

12. Heraeus has consented to personal jurisdiction and venue in this District.

IV. TRADE AND COMMERCE

A. Background: The Critical Role of S&I in U.S. Steel Production

13. The temperature and chemical composition of molten steel must be measured and monitored throughout the steel-making process. Each stage of production has specific chemical concentration and temperature requirements. The accuracy, reproducibility and reliability of molten steel temperature measurements and chemical properties directly influence the quality of the end product, as well as the safety and productivity of the steel mill. As the finished steel product may be used in demanding applications, such as steel beams for a building or automotive exterior panels, steel mills must ensure the molten steel exactly meets the required specifications. Testing and sampling the molten steel to ensure that it meets these specifications is a critical aspect of the steel-making process. S&I systems play a vitally important role in this essential aspect of the steel-making process.

14. An S&I system consists of four basic parts: (1) the single-use sensor; (2) the cardboard tube; (3) the pole; and (4) the instrument, or display. The single-use sensor, typically encased in heavy paper or cardboard and attached to a cardboard tube, contains the actual measurement device. The cardboard encasement provides momentary protection to allow the single-use sensor to transmit a reading to the instrument before the heat from the molten steel consumes the sensor. For standard single-use sensors, the cardboard tube is attached to a long, hollow metal pole that allows a steel mill worker safely to dip the sensor into the liquid steel to obtain the desired measurement. The instrument is a specialized electronic component or computer that interprets the signal from the single-use sensor and displays the temperature or chemical content measurement on a display screen or print-out. Unlike the single-use sensor, which is consumed by the molten steel, the instrument is a long-lived component that can be used for years.

15. S&I are used to monitor temperature, oxygen content, steel and slag chemistry, hydrogen concentration and the carbon content of molten steel and are differentiated primarily by the type of sensor used. A particular steel mill may utilize one type or multiple types of S&I during a particular batch, depending upon its proprietary steel-making process and the specifications of the steel's end use. The three main categories of S&I used by steel mills are thermocouples, sensors and samplers, though "combination" sensors are designed to conduct two or more tests at once.

a. *Thermocouples.* Thermocouples measure the temperature of molten steel in the furnace and in other stages of steel processing.

b. *Sensors.* Sensors measure the dissolved oxygen, carbon, hydrogen, or other elements present in molten steel. Oxygen and carbon sensors are used in most

steel-making processes, while hydrogen sensors typically are needed to produce high-purity, high-grade steel. Each type of sensor has a distinct design.

c. *Samplers.* Samplers are used during the steel-making process to withdraw a sample of molten steel for analysis outside of the molten bath. While most samplers do not contain internal electronics, they can be manufactured as a combination unit that includes a thermocouple or a type of sensor.

16. Although single-use sensors appear to be simple, each one consists of tiny platinum wires and specialized electronic controls. The lowest-priced single-use sensors may be one to two dollars per unit, while higher-end single-use sensors may be priced at ten to twenty dollars per unit.

17. The high temperature and harsh environment of the furnace necessitates the use of S&I capable of reliable, accurate measurement in extreme conditions. Temperatures in the furnace can approach or exceed 3,000 degrees Fahrenheit, and a variation of only 20 to 30 degrees can critically affect the quality and properties of the final steel product. Failure of a single-use sensor can have catastrophic results. For example, if the molten steel overheats, the steel can melt through the vessel or “break-out,” which is extremely dangerous and costly. Similarly, if the molten steel cools too quickly, or has the wrong chemical composition, it may slow or stall the production process and/or produce low-quality steel. The failure of a single-use sensor can thus potentially cost a steel mill hundreds of thousands of dollars whenever the steel fails to meet the desired physical characteristics and specifications.

18. Single-use sensors are the consumable component of the S&I system. Because single-use sensors are used continuously in the steel-making process, steel mills can use hundreds of units daily and up to millions of units annually. S&I suppliers must therefore be

capable of producing thousands of these high-precision, high-reliability products daily at a very low cost.

B. S&I Is a Relevant Product Market

19. Within the broad category of S&I, each type of single-use sensor performs a distinct function and cannot be substituted for another type of sensor or a different type of measuring device. For example, a hydrogen sensor cannot detect temperature and a thermocouple does not detect hydrogen. Accordingly, single-use sensors are not interchangeable or substitutable for one another. There is separate demand for thermocouples, oxygen sensors, carbon sensors, hydrogen sensors, and other sensors. In the event of a small but significant price increase for a given type of single-use sensor, customers would not stop using that sensor in sufficient numbers so as to defeat the price increase. Thus, each type of S&I is a separate line of commerce and a relevant product market within the meaning of Section 7 of the Clayton Act.

20. Each steel-making customer purchases a different mix of S&I to suit the specific needs of its steel mill, steel-making process, and application. Prior to the acquisition, Minco and Heraeus produced a full range of S&I and were, by far, the two producers with the largest market shares for each individual product. Minco and Heraeus competed across the full product line of S&I and typically provided customers with a mix of various single-use thermocouples, sensors and samplers. Although numerous narrower product markets also may be defined, the competitive dynamic for each individual single-use thermocouple, sensor and sampler is nearly identical. Therefore, these products can all be aggregated for analytical convenience into a single relevant product market for the purpose of assigning market shares and evaluating the competitive impact of the acquisition. Accordingly, the development, production, sale and

service of S&I is a line of commerce and a relevant product market within the meaning of Section 7 of the Clayton Act.

C. The United States Is a Relevant Geographic Market

21. The United States is a relevant geographic market because suppliers of S&I cannot make sales in the United States without having a U.S. service and sales network and U.S. manufacturing presence. The consumable portion of S&I consists of a single-use sensor and a cardboard tube. A single-use sensor is small and light and can be shipped economically from overseas. However, the cardboard tubes for S&I can be four to eight feet long and are mostly air. They have a low value-to-volume ratio, so they cannot be shipped from overseas economically. For this reason, Heraeus, Minco and the one other existing U.S. competitor manufacture finished S&I in the United States.

22. Steel manufacturers can use up to hundreds of single-use sensors each day. The steel manufacturers are staffed leanly and do not employ in-house technicians or engineers to service S&I. A defective single-use sensor or malfunctioning instrument can shut down an entire steel line, so the steel manufacturers rely on the S&I suppliers to provide on-site technical service and support that is on call at all times. Heraeus and Minco have provided experienced service technicians and product engineers on-site to assist with inventory management, troubleshooting, calibration, and other critical services. These service technicians and product engineers routinely visit a busy mill multiple times per week and often increase the number of their visits when the mill is implementing a new process or is having trouble with a particular S&I. These service technicians also make service calls in the middle of the night to fix a problem that has shut down a line. Service and technical support have been critical to the success of Heraeus and Minco in selling S&I in the United States.

23. Given that (1) it is uneconomic to ship fully assembled S&I from overseas to the United States and (2) U.S. customers require extensive on-site service, customers would not switch to producers outside the United States to defeat a small but significant price increase. Accordingly, the United States is a relevant geographic market for the development, production, sale and service of S&I within the meaning of Section 7 of the Clayton Act, as amended, 15 U.S.C. § 18.

V. HERAEUS' ACQUISITION OF MINCO IS ANTICOMPETITIVE

A. The Acquisition Increased Concentration in a Highly Concentrated Market

24. Heraeus' acquisition of Minco greatly increased the already high level of concentration in the S&I market in the United States. Concentration in relevant markets typically is measured by the Herfindahl-Hirschman Index ("HHI") (defined and explained in Appendix A). The more concentrated a market, and the more a transaction would increase concentration in a market, the greater the likelihood that the transaction will result in a meaningful reduction in competition. Markets in which the HHI is in excess of 2500 points are considered highly concentrated, and an increase in concentration by 150 points or more is considered significant. *See* Appendix A.

25. Prior to the acquisition, Heraeus had a 60% market share, Minco had a 35% market share and a third firm had the remaining 5% market share. The pre-acquisition HHI was 4850, and the post-acquisition HHI is 9050, an increase of 4200. The pre- and post-acquisition market concentration measures demonstrate that Heraeus' acquisition of Minco is presumptively anticompetitive.

B. The Acquisition Has Eliminated Head-to-Head Competition between Heraeus and Minco

26. Prior to the acquisition, U.S. customers could turn to Minco as a viable alternative source of S&I, which forced Heraeus to compete with Minco on price, service and innovation. Customers benefitted from this robust competition between Heraeus and Minco.

27. Heraeus became the dominant supplier in the United States by acquiring its competitor L&N in 1995. Around 2000, Heraeus owned 85% of the S&I market in the United States.

28. In or about 1994, Minco decided to build its own research furnace to facilitate its product development. In 2000, after several years of development, Minco began introducing high-tech products in order to compete against Heraeus. Over the next several years, Minco began selling an oxygen sensor, a hydrogen sensor and a modern instrument based on the familiar Microsoft Windows software. Minco's "Big 3" product innovations helped it to gain acceptance with steel mill customers that produce higher grades of steel. Minco expressly marketed itself to customers as a service-oriented, high-quality alternative to the dominant Heraeus and dedicated significant effort and resources toward meeting this standard. During the 2000s, Minco chipped away at Heraeus' share by competing on price, service and technology.

29. After slowly gaining market share throughout the 2000s, Minco broke through in 2010 when it introduced two more innovations that significantly raised its profile and threatened what Heraeus called its market "leadership." First, Minco introduced its combination 3-in-1 sensor head, which both increased plant efficiency and reduced the risk to steel mill workers by reducing the number of necessary measurements.

30. Second, Minco introduced its wireless transmitter, which sends the sensor's signal from the pole to the instrument. Customers viewed this technology as a "game-changer" because

it eliminated a cable dragging along the floor of the steel-making facility. This innovation enhanced worker safety by eliminating a tripping hazard, and it also saved customers money because the long cables need to be replaced frequently.

31. Prior to the acquisition, Minco and Heraeus competed head-to-head on price. Post-acquisition, Heraeus' steel mill customers are vulnerable to price increases because of the critical function of S&I and their small cost relative to the value of the finished steel product. The lowest-priced single-use sensors may be one to two dollars per unit, while higher-end single-use sensors can be ten to twenty dollars per unit. Only a few dollars worth of single-use sensors are used in each batch of steel, which makes numerous tons of steel that sell for about \$600 per ton at current prices. As a result, the per-ton cost of single-use sensors is measured in fractions of a percent of the sales price of finished steel. Moreover, because the process of making steel costs thousands of dollars per minute, any interruption of the steel-making process caused by a defective single-use sensor can be extremely costly.

32. Prior to the acquisition, Minco and Heraeus also competed to provide a high level of service to steel mills. Each company had service representatives that would visit the mills multiple times each week, sometimes daily at the largest mills, to repair equipment, perform routine maintenance, and train mill employees. Post-acquisition, Heraeus has the incentive to impose on customers less favorable terms of service than those that were provided before the acquisition. Thus, the acquisition likely has led to deterioration of service, longer delivery times and less certain delivery, which have imposed significant risks and delays on the U.S. steel industry. Indeed, Heraeus began cutting its marketing and service staff immediately after the acquisition.

33 Prior to the acquisition, Heraeus monitored Minco's innovative efforts and attempted to match or exceed Minco's offerings. Post-acquisition, Heraeus has less incentive to continue its research and development efforts on new and innovative product offerings.

34. The elimination of Minco as an independent and strong competitor likely will lead to higher prices, reduced service, and less innovation. Through its acquisition of the Minco assets, Heraeus has substantially lessened competition in the U.S. market for the development, production, sale and service of S&I, in violation of Section 7 of the Clayton Act, 15 U.S.C. § 18.

C. The Anticompetitive Effects of the Acquisition Will Not Be Counteracted by Entry or Expansion.

35. Entry and/or expansion into the development, production, sale and service of S&I will not be timely, likely or sufficient to counteract the anticompetitive effects of Heraeus' acquisition of Minco. The development, production, sale and servicing of S&I requires highly specialized know-how, specialized equipment, a full-line of S&I products, a U.S. production facility, and a U.S.-based sales and service network.

36. The machinery used to manufacture S&I is highly specialized to meet exacting mass production requirements. For example, it took one S&I supplier two years of engineering time to develop a customized machine that could mass produce reliable and accurate single-use oxygen sensors. Thus, entry by producers of other types of measurement devices will not be likely, timely or sufficient.

37. S&I suppliers currently outside the United States cannot sell into the United States because it is uneconomic to transport fully assembled S&I into the United States and because they do not have a U.S. sales and service network, which is a prerequisite to selling to U.S. customers. The development of a U.S. production/assembly facility and, even more importantly, a dependable sales and service network often can take a significant period during

which the potential entrant is not making sales. U.S.-based customers will not purchase S&I from a foreign supplier that does not maintain a dependable sales/support network that can provide on-call service for its S&I products.

38. Establishing a reputation for successful performance and gaining customer confidence in a specific firm's S&I are also significant barriers to expansion and/or entry. Establishing a reputation for dependable, accurate supply and service is critical to success in the S&I market. A track record and reputation for reliability must be earned over years.

VI. VIOLATION ALLEGED

Violation of Clayton Act Section 7, 15 U.S.C. § 18

39. The United States incorporates the allegations of paragraphs 1 through 38 above as if set forth fully herein.

40. Heraeus' acquisition of the assets of Minco is likely to substantially lessen competition in interstate trade and commerce in violation of Section 7 of the Clayton Act.

41. The transaction has had or will have the following effects, among others:

- a. Competition between Heraeus and Minco in the development, production, sale and service of S&I in the United States has been eliminated;
- b. Heraeus has significantly reduced incentives to discount prices, increase the quality of its services, or invest in innovation;
- c. Prices for S&I will likely increase above levels that would have prevailed absent the transaction, leading steel mills and other customers to pay higher prices for S&I for molten steel; and

- d. Innovation will likely decrease, delivery times likely will lengthen, and the quality and terms of service likely will become less favorable than those that would have prevailed absent the transaction.

VII. REQUEST FOR RELIEF

42. The United States requests that this Court:
 - a. Adjudge and decree the acquisition by defendant Heraeus of the assets of Minco to violate Section 7 of the Clayton Act, 15 U.S.C. § 18;
 - b. Compel Heraeus to divest all of Minco's tangible and intangible assets related to the development, production, sale and service of S&I and to take any further actions necessary to restore the market to the competitive position that existed prior to the acquisition;
 - c. Award such temporary and preliminary injunctive and ancillary relief as may be necessary to avert the likelihood of the dissipation of Minco's tangible and intangible assets during the pendency of this action and to preserve the possibility of effective final relief;
 - d. Award the United States the cost of this action; and
 - e. Grant the United States such other further relief as the case requires and the Court deems just and proper.

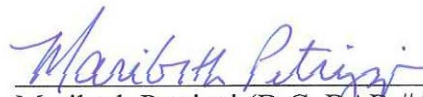
Respectfully submitted,

DATE: January 2, 2014

FOR PLAINTIFF UNITED STATES



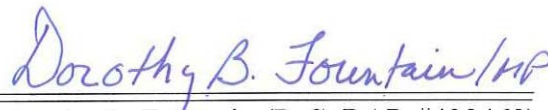
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APPENDIX A

HERFINDAHL-HIRSCHMAN INDEX CALCULATIONS

“HHI” means the Herfindahl-Hirschman Index, a commonly accepted measure of market concentration. It is calculated by squaring the market share of each firm competing in the market and then summing the resulting numbers. For example, for a market consisting of four firms with shares of thirty, thirty, twenty, and twenty percent, the HHI is 2600 ($30^2 + 30^2 + 20^2 + 20^2 = 2,600$). The HHI takes into account the relative size and distribution of the firms in a market and approaches zero when a market consists of a large number of firms of relatively equal size. The HHI increases both as the number of firms in the market decreases and as the disparity in size between those firms increases.

Markets in which the HHI is between 1,500 and 2,500 points are considered to be moderately concentrated and those in which the HHI is in excess of 2,500 points are considered to be highly concentrated. *See* U.S. Department of Justice & FTC, *Horizontal Merger Guidelines* § 5.3 (2010). Transactions that increase the HHI by more than 200 points in highly concentrated markets presumptively raise antitrust concerns under the *Horizontal Merger Guidelines* issued by the U.S. Department of Justice and the Federal Trade Commission. *See id.*