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UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF PENNSYLVANIA

UNITED STATES OF AMERICA,

Plaintiff,

v.

NIPPON SANSO K.K.,
MATHESON GAS PRODUCTS, INC.,
HERCULES INCORPORATED, and
SEMI-GAS SYSTEMS, INC.,

Defendants.

Civil Action No. 91-0041

Filed: January 3, 1991

VERIFIED COMPLAINT

The United States of America, plaintiff, by its attorneys, acting under the direction of the Attorney General of the United States, brings this civil action to obtain equitable relief preventing Nippon Sanso K.K. and Matheson Gas Products, Inc. from acquiring Semi-Gas Systems, Inc. and complains and alleges as follows:

I. JURISDICTION AND VENUE

1. This complaint is filed and this action is instituted against the defendants under Section 15 of the Clayton Act, 15 U.S.C. § 25, as amended, to prevent and restrain the violation, as hereinafter alleged, of Section 7 of the Clayton Act, 15 U.S.C. § 18, as amended.

2. Nippon Sanso K.K. is a Japanese corporation. Nippon Sanso K.K. transacts business in the United States, directly and through its subsidiaries. Venue is properly based in this District under 28 U.S.C. § 1391(d).

3. Matheson Gas Products, Inc. is found and does business in the Eastern District of Pennsylvania, within the meaning of 15 U.S.C. § 22 and 28 U.S.C. § 1391(c).

4. Hercules Incorporated is found and does business in the Eastern District of Pennsylvania, within the meaning of 15 U.S.C. § 22 and 28 U.S.C. § 1391(c).

5. Semi-Gas Systems, Inc. is found and does business in the Eastern District of Pennsylvania, within the meaning of 15 U.S.C. § 22 and 28 U.S.C. § 1391(c).

II. DEFINITIONS

6. "Gas cabinet" means an enclosed system of piping, valves, purifiers, regulators, purge manifolds, monitors and sensors, alarm systems, electronic controls and software, and other related components designed to contain hazardous specialty gases and to distribute such gases from their containment cylinders to processing tools used in semiconductor manufacturing. Gas cabinets are usually configured to hold two process gas cylinders and one purge gas cylinder. When cylinders are replaced, gas lines must be purged of process gas before opening the cylinder connection. Purging, which involves forcing a safe gas into the lines under pressure and removing it with a vacuum, prevents release of hazardous gas into the

workplace. After the new cylinder is connected, gas lines must be purged of air, and the purging gas must be carefully removed to avoid contaminating the system. When performed manually, purging can take over 20 steps of opening and closing valves. In an automated gas cabinet, these steps are performed by a micro-processor controller.

7. "HHI" means the Herfindahl-Hirschman Index, a 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 2,600 ($30^2 + 30^2 + 20^2 + 20^2 = 2,600$). 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.

III. THE DEFENDANTS

8. Nippon Sanso K.K. ("Nippon") is made a defendant. Nippon is a Japanese corporation with its principal offices in Tokyo, Japan. Nippon is the second largest producer of gas cabinets in the world, with 1989 sales of about \$10 million. Through its wholly owned subsidiary, Matheson Gas Products, Inc.,

Nippon manufactures and sells gas cabinets in the United States. Nippon is engaged in interstate commerce and in activities substantially affecting interstate commerce.

9. Matheson Gas Products, Inc. ("Matheson") is made a defendant. Matheson is a corporation organized and existing under the laws of the state of Delaware, with its principal offices in Secaucus, New Jersey. Matheson manufactures and sells gas cabinets in the United States from its plant in Montgomeryville, Pennsylvania. Nippon acquired a 50 percent interest in 1983, and acquired the remaining 50 percent of Matheson in June 1989. Matheson is engaged in interstate commerce and in activities substantially affecting interstate commerce.

10. Hercules Incorporated ("Hercules") is made a defendant. Hercules is a corporation organized and existing under the laws of the state of Delaware, with its principal offices in Wilmington, Delaware. Through its wholly owned subsidiary, Semi-Gas Systems, Inc., Hercules manufactures and sells gas cabinets in the United States. Hercules is engaged in interstate commerce and in activities substantially affecting interstate commerce.

11. Semi-Gas Systems, Inc. ("Semi-Gas") is made a defendant. Semi-Gas is a corporation organized and existing under the laws of the state of California, with its principal offices in San Jose, California. Semi-Gas is the largest producer of gas cabinets in the world, with 1989 sales of about \$17 million.

IV. TRADE AND COMMERCE

12. Semiconductor manufacturers are the primary users of gas cabinets. In 1989, about 97 percent of the gas cabinets sold in the United States were purchased by the semiconductor industry. Performance, reputation for reliability, and price are the primary factors considered by semiconductor manufacturers in selecting a gas cabinet supplier. In addition, service and technical support are important to gas cabinet customers.

13. A semiconductor, also known as a chip or integrated circuit, is a series of tiny electronic circuits made by depositing chemical material from gases on surfaces of a silicon wafer. To meet increasingly stringent requirements for producing high density chips, manufacturers have been using more hazardous gases. Such gases must be safely stored and managed in order to avoid employee injury and environmental damage. Many government agencies and jurisdictions now require isolation of hazardous gas cylinders in gas cabinets.

14. Developments in chip manufacturing technology have increased the demand for gas cabinets designed and assembled to deliver extremely high purity gases. Gas impurities cause defects on a wafer's surface, and the number and size of the defects increase with an increase in impurities. To meet chip manufacturers' demand for high purity, gas cabinet components are constructed of high quality steel, and their interiors

are electro-polished to achieve smooth surfaces. Valves, regulators, pipes, and fittings are designed to eliminate any dead spaces where contaminants could form. The components are then orbitally welded and assembled in specially manufactured "clean rooms." The need to minimize impurities in semiconductor manufacturing has also led to development of highly automated gas cabinets. Automation minimizes the risk of human error and the contamination that could result from such error. Currently, sales of automated gas cabinets comprise about two-thirds of total gas cabinet sales in the United States.

15. There are no substitutes for gas cabinets to which a significant number of customers could turn in response to a small but significant and nontransitory increase in the prices of gas cabinets.

16. Manufacturers of gas cabinets sell and compete with one another for sales throughout the United States. No significant imports of gas cabinets are made into the United States.

17. The manufacture and sale of gas cabinets constitutes a line of commerce and a relevant product market, and the United States as a whole is a section of the country and a relevant geographic market in which gas cabinets are sold, within the meaning of Section 7 of the Clayton Act.

18. In 1989, the four largest gas cabinet manufacturers in the United States accounted for about 78 percent of gas cabinet sales. Semi-Gas alone accounted for about 36 percent of 1989 gas cabinet sales in the United States. Nippon's proposed acquisition of Semi-Gas would create a firm holding about 39 percent of the United States gas cabinet market. The combined firm would have about 48 percent of United States sales of automated gas cabinets, which are more expensive than manual gas cabinets.

19. At present, the HHI for the manufacture and sale of gas cabinets in the United States is 2030, based on 1989 sales. The proposed acquisition would increase the HHI by 204 points to 2234. A market with an HHI of 1000 is moderately concentrated, and a market with an HHI of 1800 is highly concentrated. The proposed acquisition would substantially increase concentration in an already highly concentrated market.

20. Nippon and Semi-Gas are the two largest producers of gas cabinets in the world. Nippon's proposed acquisition of Semi-Gas would create a firm with about 33 percent of worldwide sales of gas cabinets.

21. Entry into the manufacture and sale of gas cabinets is not easy because of, inter alia, the time and cost required to develop the necessary technology to produce gas cabinets, to

plan the manufacture and sale of gas cabinets, to establish a technical sales force, and to promote and market a new gas cabinet. In addition, to compete in the United States gas cabinet market a firm must establish a reputation for quality, reliability, and technical service. Since a gas cabinet failure could destroy or substantially reduce the yield on a batch of chips worth millions of dollars, semiconductor manufacturers are often unwilling to purchase cabinets from a supplier that lacks a proven track record for quality and reliability. A small but significant and nontransitory increase in gas cabinet prices is unlikely to induce successful entry into the United States gas cabinet market.

22. Manufacturers of gas cabinets ship and sell substantial quantities of gas cabinets across state lines to locations throughout the United States. They also purchase equipment and supplies from states other than the state in which their product is manufactured, and that equipment and those supplies are regularly shipped across state lines. The production and sale of gas cabinets are within the flow of and substantially affect interstate commerce.

V. VIOLATION ALLEGED

23. Pursuant to a stock purchase agreement dated April 13, 1990, Nippon proposes to acquire from Hercules all the capital stock of Semi-Gas for \$23.5 million and thereafter to operate

Semi-Gas as a subsidiary of Matheson. The parties plan to consummate the proposed transaction on January 5, 1991.

24. The effect of the acquisition of Semi-Gas by Nippon may be substantially to lessen competition in interstate trade and commerce in violation of Section 7 of the Clayton Act in the following ways, among others:

(a) Actual and potential competition between Nippon/Matheson and Semi-Gas in the market for the manufacture and sale of gas cabinets in the United States will be eliminated;

(b) Competition generally in the market for the manufacture and sale of gas cabinets in the United States may be substantially lessened.

VI. PRAYER

WHEREFORE, plaintiff prays:

1. That preliminary and permanent injunctions be issued preventing and restraining the defendants and all persons acting on their behalf from consummating the purchase agreement alleged in paragraph 23 or from going forward with any other plan or agreement by which Nippon or Matheson would merge with or acquire Semi-Gas, its capital stock, or any of its assets.


2. That the proposed acquisition be adjudged a violation of Section 7 of the Clayton Act.

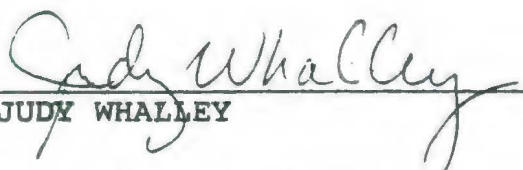
3. That the plaintiff have such other and further relief as the nature of this case may require and as this Court may deem just and proper.

4. That the plaintiff recover the costs of this action.

Dated: January 3, 1991


JAMES F. RILL
Assistant Attorney General

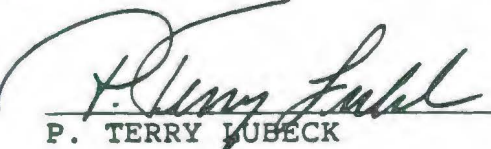

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MATHESON GAS PRODUCTS, INC.,)	
HERCULES INCORPORATED, and)	
SEMI-GAS SYSTEMS, INC.,)	
)	
Defendants.)	

VERIFICATION OF COMPLAINT

I, Willie L. Hudgins, Jr. declare:

1. I am an attorney with the United States Department of Justice, Antitrust Division.

2. The foregoing complaint for and on behalf of the United States of America was duly prepared under the direction of the Attorney General of the United States. The facts stated therein have been assembled by authorized employees and counsel for the United States of America. The allegations therein are true and correct to the best of my knowledge, information, and belief.

I declare under penalty of perjury that the above is true and correct.

Executed on: January 3, 1991



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