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**ANNUAL SURVEY ON CERTAIN  
STAINLESS STEEL AND ALLOY  
TOOL STEEL (COVERING  
ANNUAL 1987, AND  
QUARTERLY AND  
ANNUAL 1988)**

Report to the President on  
Investigation No. 332-167  
Under Section 332 of the  
Tariff Act of 1930



**USITC PUBLICATION 2173**

**MARCH 1989**

**United States International Trade Commission  
Washington, DC 20436**

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## **NOTICE**

The whole of the Commission's report to the President may not be made public since it contains certain information that has been classified by the United States Trade Representative or would result in the disclosure of the operations of individual concerns. This published report is the same as the report to the President, except that the above-mentioned information has been omitted (as indicated by asterisks).

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1. The first part of the report deals with the general situation of the country and the position of the various groups. It is a very interesting and comprehensive survey of the country and its people.

2. The second part of the report deals with the economic situation of the country and the position of the various groups. It is a very interesting and comprehensive survey of the country and its people.

3. The third part of the report deals with the social situation of the country and the position of the various groups. It is a very interesting and comprehensive survey of the country and its people.

4. The fourth part of the report deals with the political situation of the country and the position of the various groups. It is a very interesting and comprehensive survey of the country and its people.

5. The fifth part of the report deals with the cultural situation of the country and the position of the various groups. It is a very interesting and comprehensive survey of the country and its people.

## SPECIALTY STEEL IMPORT RELIEF

Presidential Proclamation 5074 of July 19, 1983, provided for the temporary imposition of increased tariffs and quantitative restrictions on certain stainless and alloy tool steel imported into the United States. On September 18, 1984, the President established a national policy for the steel industry and directed the U.S. Trade Representative to coordinate and direct the implementation of that policy, including the negotiation of new arrangements and the reaffirmation of existing measures limiting steel exports to the United States, such as those applicable to specialty steel. Pursuant to this, the U.S. Trade Representative concluded voluntary restraint agreements (VRA's) with 19 countries and the EC,<sup>1</sup> which, among other provisions, replace the increased tariffs on imports of stainless steel sheets, strip, and plate with quotas.<sup>2</sup> However, the additional tariffs remain in effect on imports of stainless sheets, strip, and plate from countries which have not participated in import restraint agreements. In addition, the EC countries were removed from the quantitative restrictions imposed on the non-flat-rolled specialty products (i.e., bar, wire rod, and alloy tool steel) and appropriate reductions in the quota quantities were made for the foregoing items.

The import relief was extended under Presidential Proclamation 5679 in the form previously in effect for a period from July 20, 1987 through September 30, 1989, "in order to provide time for the specialty steel industry to complete important investment projects, improve productivity, and regain profitability." The form of the extended relief is as follows: for the flat-rolled products (stainless steel sheets and strip and stainless steel plate), tariffs will be decreased from 3 percent ad valorem in the first year, to 2 percent ad valorem in the second year, and to 1 percent in the final period (July 20, 1989, to September 30, 1989). "In recognition of the weaker competitive position of the stainless steel bar, rod, and alloy tool steel sectors," the President proclaimed an extension of global quotas for these products. The extension of relief will not affect the limits on imports of specialty steel products under the VRA's.

In connection with this decision, the President requested the USITC to continue preparing annual reports on competitive conditions in the stainless steel and alloy tool steel industries. Details of the request are contained in the Presidential Proclamation, a copy of which appears in appendix A.

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<sup>1</sup> The countries with which agreements have been reached are Australia, Austria, Brazil, Czechoslovakia, the German Democratic Republic, Finland, Hungary, Japan, Mexico, People's Republic of China, Poland, Portugal, the Republic of Korea, Romania, South Africa, Spain, Trinidad and Tobago, Venezuela, Yugoslavia, and the European Communities (Belgium, Denmark, France, Greece, Ireland, Italy, Luxembourg, the Netherlands, the United Kingdom, and West Germany).

<sup>2</sup> The exception to this is Finland, whose VRA does not include stainless steel flat-rolled products.

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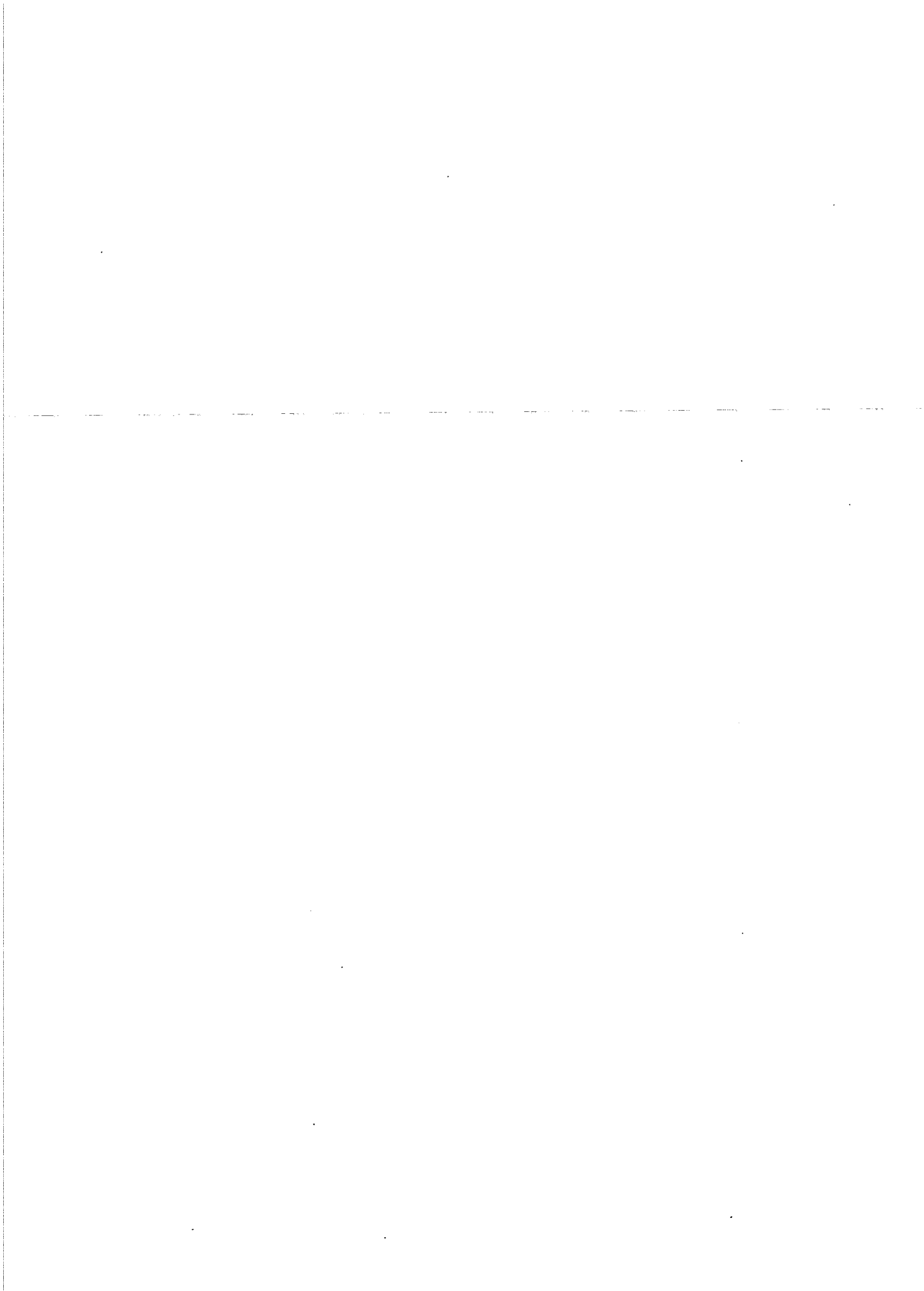
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## HIGHLIGHTS

- **U.S. producers' capacity** increased by 2 percent from 1,895,382 tons in 1987 to 1,924,918 tons in 1988.
- **Domestic production** of the stainless steel and alloy tool steel products covered by the investigation increased by 17 percent from 1.3 million tons in 1987 to 1.5 million tons in 1988; increases occurred in all product categories.
- **U.S. producers' shipments** rose by 11 percent from 1.3 million tons in 1987 to nearly 1.5 million tons in 1988.
- **Average employment** of production and related workers increased marginally from 12,680 workers in 1987 to 12,693 workers in 1988. Total man-hours worked increased by 3 percent.
- **U.S. producers' unfilled orders** declined by 30 percent from 413,707 tons on December 31, 1987 to 291,141 tons on December 31, 1988.
- **U.S. producers' end-of-period inventories** increased by 15 percent from 292,005 tons on December 31, 1987 to 334,473 tons on December 31, 1988.
- **U.S. producers' sales** increased by 35 percent, from \$3.79 billion during 1987 to \$5.10 billion during 1988, while NET PROFIT BEFORE TAXES rose to \$611.0 million during 1988 compared to \$257.9 million during 1987.
- **U.S. capital expenditures** were \$77 million in 1987 and rose to \$102 million in 1988. Differences between actual expenditures in 1988 and projections made in 1987 were slight.
- **U.S. expenditures on research and development** were \$33.6 million in 1987, and increased to \$35.2 million in 1988. These expenditures are expected by producers to remain relatively stable over 1989-90.

### U.S. Producers' Capacity

An increase occurred in the total capacity of operations producing the stainless steel and alloy tool steel products subject to investigation between 1987 and 1988 (table 1). The capacity increase occurred principally in the stainless steel flat-rolled sheet products sector, which experienced strong demand in both 1987 and 1988. U.S. producers' finishing capacity has declined between 1987 and 1988 for stainless steel wire rod and alloy tool steel, as a result of restructuring of operations by several companies.

### U.S. Production and Producers' Shipments

U.S. production of the stainless steel and alloy tool steel products covered by the investigation increased in every category from 1987 to 1988 (table 2). There were increases in shipments in each product category, except stainless steel plate (table 3).<sup>1</sup> Growing demand for stainless steel products has resulted from the increased use of stainless steels in the maintenance and upgrading of oil refining and chemical plants, construction, and the wider use of stainless equipment in the pulp and paper industry, and fast food services industry. The industry predicts that only a heat exchanger using stainless steel will meet mandated Federal energy efficiencies by 1990. The use of stainless steel for the passenger carriages in mass transit, new passenger car models, and for beer barrels is growing; three car models in 1990 will have door panels of stainless steel encased in plastic, for example, in addition to the 12-fold increase of stainless steel by weight. One product seen as a likely growth area is stainless reinforcing bars for use in corrosive environments and in buildings requiring non-magnetic material (e.g., defense

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<sup>1</sup> As a result of increased demand, certain consumers experienced difficulty purchasing products, as evidenced by the filing of a number of petitions to import material in excess of VRA limits (see appendix B).

installations, and hospital buildings); another is the decorative use of colored stainless steel on building facades. Consumption of stainless steel used in kitchen utensils and appliances is also growing.

### **Employment and Hours Worked**

Reductions in administrative and related positions resulted in an overall decline in employment in the industry in 1988. The average number of all persons employed in producing the subject stainless steel and alloy tool steel products decreased from 19,584 persons to 17,151 persons, or by 12 percent, from 1987 to 1988 (table 4). In response to increased production, however, the number of production and related workers increased slightly from 12,680 workers to 12,693 workers over the same period (table 5). The number of hours worked by production and related workers increased by 2.5 percent during the period (table 6). There were gains in productivity between 1987 and 1988, measured in either production or shipments in tons per employee.

### **U.S. Producers' Unfilled Orders and Inventories**

Producers' unfilled orders for all products between December 31, 1987 and December 31, 1988 increased through the first half of the year, followed by decreases in unfilled orders in the second half of the year; unfilled orders by year-end 1988 were approximately 70 percent of unfilled orders at year-end 1987 (table 7). This reflects the lengthening of lead times due to increased demand for stainless steel, as well as the nickel supply difficulties encountered by the industry in the first half of the year. Inventories show a negligible increase for the first half of 1988, gradually building up through the third and fourth quarters of 1988 (table 8). Increases in inventories of stainless steel plate, and sheet and strip accounted for most of the overall increase. Changes in inventories are related to price movements of both stainless and alloy tool steels, and indirectly to the price movements of their raw material inputs. Price volatility of nickel and chrome affected consumption of stainless steel, leading to a buildup of inventories in the latter half of 1988 (see appendix C).

### **U.S. Producers' Sales and Net Profit Before Taxes**

Reflecting the increase in quantity shipped in 1988 compared with 1987, and price increases (which reflected both increased demand and raw materials surcharges), sales value rose for each of the products during this period (tables 9-14). The increase in operating rates, from 69 percent in 1987 to 80 percent in 1988, and increases in sales volumes led to increased net profits before taxes on overall operations and in each product category. Producers of stainless steel bar and wire rod showed profits in 1988, the only two product categories to record losses in 1987.

### **U.S. Capital Expenditures**

Capital expenditures by specialty steel producers (tables 15 and 16) increased in each of the product categories between 1987 and 1988, principally due to increased spending for machinery, equipment, and fixtures. The bulk of the spending was for additional (or modernized) finishing equipment, and improvements to melting equipment, rolling mills, and annealing, pickling, and coating facilities, all of which are designed to lower costs, increase productivity, and improve product quality. Actual capital expenditures of \$110 million in 1988 were significantly higher than the \$82 million spent in 1987. Capital expenditures are projected to remain the same through 1989, and decline to \$104 million in 1990.

For 1988, capital expenditures ranged from 6 to 132 percent of cash flow for all product categories (table 20). A ratio exceeding 100 indicates that the industry utilized

funds that exceeded those generated from the firm's own profits and depreciation. The two sectors that were not profitable in 1987, stainless steel bar and wire rod, showed the highest capital expenditures to cash flow ratio, reflecting increased spending to improve productivity in their operations.

### **U.S. Research and Development Expenditures**

U.S. expenditures on research and development (tables 17 and 18) for the products subject to import relief rose between 1987 and 1988, with increased spending on sheet and strip offsetting declines in other product categories. Total research and development expenditures of \$35 million were 3 percent above the \$34 million projected by producers for 1988, and significantly higher than the \$23 million expended in 1987. Such expenditures are projected to increase to about \$38.5 million in each of 1989 and 1990. Most research and development expenditures have been made, and will be made, for the production of new and improved products, and for the development of improved production processes, which would make stainless steel sheet and strip more competitive with alternative materials and improve the quality.

In 1988, research and development expenditures as a share of net sales ranged from 0.29 percent to 1.15 percent in all product categories (table 20). Reflecting increased sales prices in 1988, this ratio declined for each of the product categories from the range of 0.54 to 2.14 percent that was reported in 1987.

### **Modifications in Specialty Steel Import Relief**

There were no changes or modifications in either the system of Orderly Marketing Arrangements (OMA) or the Voluntary Restraint Agreements (VRA) during 1988. The OMA program provides quotas on imports from certain exporting countries not covered by VRAs; the VRAs provide for quotas on imports from the European Community and Brazil. Both programs are scheduled to expire on September 30, 1989.

At a press conference given jointly by The Specialty Steel Industry of the United States and the United Steelworkers of America, AFL-CIO, the industry argued for the incorporation of the OMA's (which cannot be extended, by law) into the VRA's, together with expansion of country coverage to include those not now included, such as Finland, Sweden, Thailand, and Canada.<sup>1</sup>

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<sup>1</sup> Press Conference on Feb. 1, 1989. Remarks by Richard Simmons, Chairman and CEO of Allegheny Ludlum Corp., and Lynn Williams, President, United Steel Workers of America, AFL-CIO.

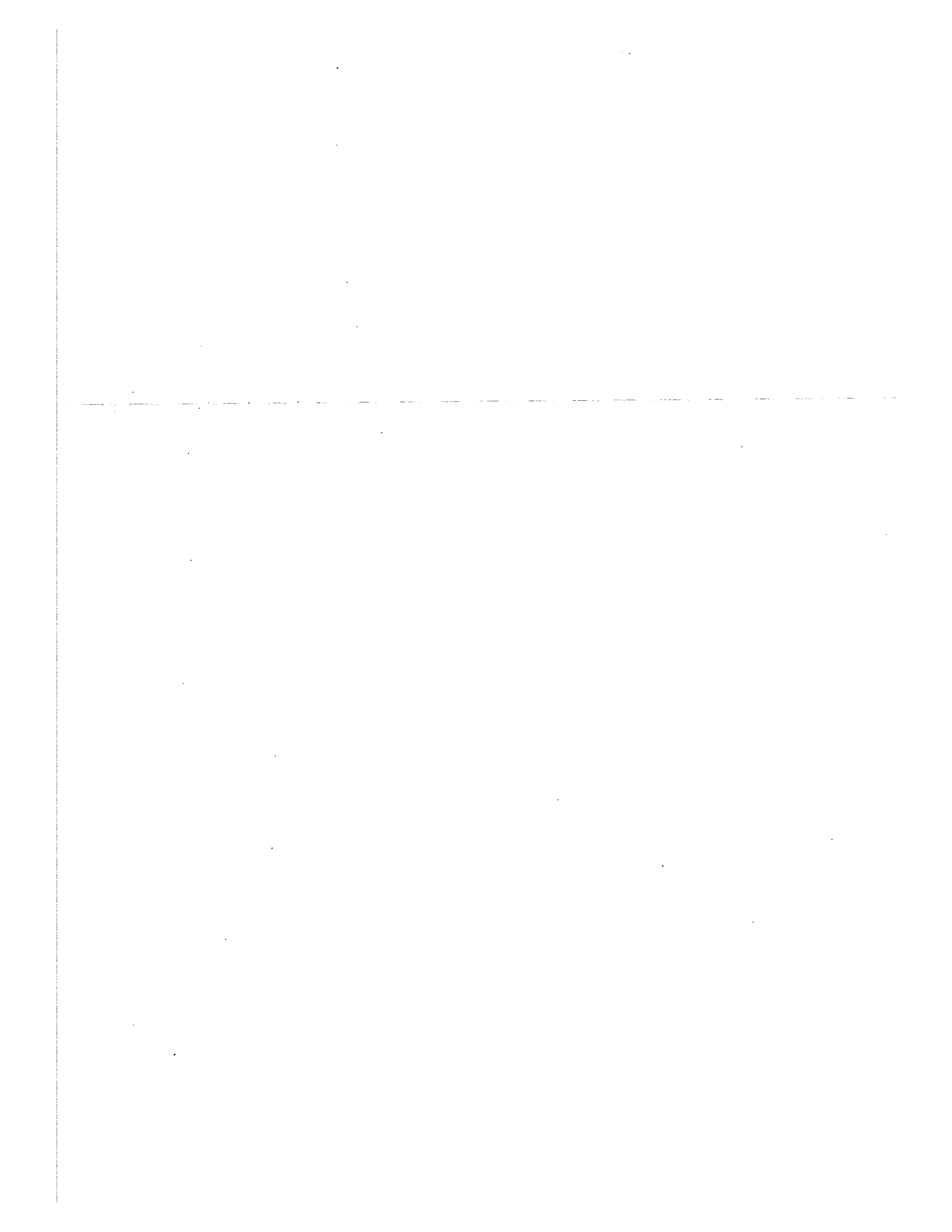


Table 1

## Certain stainless steel and alloy tool steel: U.S. producers' capacity, by products, 1987-88

(In short tons)

Item	1987 <sup>1</sup>	1988
Raw steel capacity for all operations producing stainless steel and/or alloy tool steel products <sup>2</sup>	2,314,555	2,494,578
Certain stainless steel and alloy tool steel products <sup>3</sup>	1,390,507	1,405,288
Stainless steel plate <sup>3</sup>	248,300	248,300
Stainless steel sheets and strip <sup>3</sup>	1,151,000	1,211,200
Stainless steel bar <sup>3</sup>	228,076	227,176
Stainless steel wire rod <sup>3</sup>	75,320	67,720
Alloy tool steel, all forms <sup>3</sup>	177,686	162,022

<sup>1</sup> Revised.<sup>2</sup> Melt capacity.<sup>3</sup> Finishing capacity.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table 2

## Certain stainless steel and alloy tool steel: U.S. production, by products, 1987-88

(In short tons)

Item	1987	1988
Certain stainless steel and alloy tool steel products	1,321,385	1,546,330
Stainless steel plate	187,493	197,614
Stainless steel sheets and strip	845,586	1,001,780
Stainless steel bar	159,327	190,764
Stainless steel wire rod	48,849	71,458
Alloy tool steel, all forms	80,130	84,714

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table 3

## Certain stainless steel and alloy tool steel: U.S. producers' shipments, by products, 1987-88

(In short tons)

Item	1987	1988
Certain stainless steel and alloy tool steel products	1,308,995	1,457,060
Stainless steel plate	184,781	178,703
Stainless steel sheets and strip	862,279	968,287
Stainless steel bar	141,965	165,825
Stainless steel wire rod	46,702	63,293
Alloy tool steel, all forms	73,268	80,952

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table 4

## Certain stainless steel and alloy tool steel: Average number of all persons employed in U.S. establishments in which certain stainless steel and alloy tool steel products are produced, by products, 1987-88

Item	1987	1988
Certain stainless steel and alloy tool steel products	19,584	17,151
Stainless steel plate	1,825	1,832
Stainless steel sheets and strip	8,330	6,295
Stainless steel bar	4,759	5,408
Stainless steel wire rod	1,118	1,128
Alloy tool steel, all forms	3,552	2,488

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table 5

Certain stainless steel and alloy tool steel: Average number of production and related workers employed in U.S. establishments in which certain stainless steel and alloy tool steel products are produced, by products, 1987-88

Item	1987	1988
Certain stainless steel and alloy tool steel products .....	12,680	12,693
Stainless steel plate .....	1,416	1,460
Stainless steel sheets and strip .....	4,726	5,015
Stainless steel bar .....	3,253	3,722
Stainless steel wire rod .....	733	744
Alloy tool steel, all forms .....	2,552	1,752

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table 6

Certain stainless steel and alloy tool steel: Number of man-hours worked by production and related workers in U.S. establishments in which certain stainless steel and alloy tool steel products are produced, by products, 1987-88

Item	1987	1988
Certain stainless steel and alloy tool steel products .....	26,829,385	27,508,986
Stainless steel plate .....	3,144,899	3,010,661
Stainless steel sheets and strip .....	9,794,351	10,610,360
Stainless steel bar .....	7,079,595	8,419,010
Stainless steel wire rod .....	1,563,996	1,398,457
Alloy tool steel, all forms .....	5,246,544	4,070,498

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table 7

Certain stainless steel and alloy tool steel: U.S. producers' unfilled orders, by products, by specified periods, 1987 and 1988

(In short tons)

Period	Stainless steel plate	Stainless steel sheets and strip	Stainless steel bar	Stainless steel wire rod	Alloy tool steel, all forms	All products subject to investigation
1987						
Dec. 31 .....	38,087	310,022	32,511	24,276	8,811	413,707
1988						
March 31 ...	51,682	305,859	50,511	27,622	10,823	446,497
June 30 .....	58,329	290,309	56,460	24,324	10,453	439,875
Sept. 30 .....	44,744	213,857	49,739	20,071	12,640	341,051
Dec. 31 .....	31,399	183,256	47,895	17,606	10,985	291,141

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table 8

Certain stainless steel and alloy tool steel: U.S. producers' end-of-period inventories, by products, by specified periods, 1987 and 1988

(In short tons)

Period	Stainless steel plate	Stainless steel sheets and strip	Stainless steel bar	Stainless steel wire rod	Alloy tool steel, all forms	All products subject to investigation
1987						
Dec. 31 .....	33,253	160,080	48,493	8,256	41,923	292,005
1988						
March 31 ...	40,681	156,438	54,627	10,004	40,671	302,421
June 30 .....	38,835	150,691	53,952	10,607	42,644	296,729
Sept. 30 .....	43,491	157,338	54,623	11,635	43,366	310,453
Dec. 31 .....	49,414	179,020	52,973	10,934	42,132	334,473

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.



Table 9

Selected financial data of U.S. producers on their overall stainless steel and/or alloy tool steel operations, 1987-88, and by specified periods, 1988

(In thousands of dollars)

Line No.	Item	Year 1987 <sup>1</sup>	Jan-Mar. 1988 <sup>1</sup>	Apr-June 1988 <sup>1</sup>	July-Sept. 1988 <sup>1</sup>	Oct-Dec. 1988 <sup>1</sup>	Year 1988 <sup>1</sup>
<b>Net sales</b>							
1	Excluding intracompany and intercompany transfers .....	3,633,731	1,094,924	1,294,649	1,288,822	1,232,707	4,911,102
2	Intracompany and intercompany transfers .....	154,302	37,785	45,226	57,227	48,150	188,388
3	<b>Total net sales (lines 1 and 2) .....</b>	<b>3,788,033</b>	<b>1,132,709</b>	<b>1,339,875</b>	<b>1,346,049</b>	<b>1,280,857</b>	<b>5,099,490</b>
4	Cost Of Goods Sold (including intracompany and intercompany transfers) .....	3,153,132	929,763	1,096,028	1,060,818	1,043,552	4,130,161
5	Gross Profit Or (Loss) (line 3 less line 4) .....	634,901	202,946	243,847	285,231	237,305	969,329
6	General, Selling, And Administrative Expenses .....	279,501	59,204	67,463	63,647	65,837	256,151
7	Net Operating Profit Or (Loss) (line 5 less line 6) .....	355,400	143,742	176,384	221,584	171,468	713,178
<b>Other Income Or (Expense)</b>							
8	Net interest income or (expense) .....	(75,850)	(13,029)	(13,479)	(11,406)	(10,584)	(48,498)
9	All other income or (expense) .....	(21,670)	(11,831)	(15,629)	(14,129)	(11,871)	(53,460)
10	<b>Total other income or (expense) (lines 8 and 9) .....</b>	<b>(97,520)</b>	<b>(24,860)</b>	<b>(29,108)</b>	<b>(25,535)</b>	<b>(22,455)</b>	<b>(101,958)</b>
11	Net Profit Or (Loss) Before Taxes (line 7 plus line 10) .....	257,880	118,582	147,276	196,049	149,013	610,950
12	Depreciation and amortization .....	108,030	19,979	20,273	20,091	20,787	81,130

<sup>1</sup> \*\*\* did not provide quarterly data, only annual data.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table 10

4 Selected financial data of U.S. producers on their stainless steel plate operations, 1987-88, and by specified periods, 1988

(In thousands of dollars)

Line No.	Item	Year 1987 <sup>1</sup>	Jan-Mar. 1988 <sup>1</sup>	Apr-June 1988 <sup>1</sup>	July-Sept. 1988 <sup>1</sup>	Oct-Dec. 1988 <sup>1</sup>	Year 1988 <sup>1</sup>
Net sales							
1	Excluding intracompany and intercompany transfers .....	***	***	***	***	***	***
2	Intracompany and intercompany transfers .....	***	***	***	***	***	***
3	Total net sales (lines 1 and 2) .....	318,584	101,345	135,760	154,711	166,888	558,704
4	Cost Of Goods Sold (including intracompany and intercompany transfers) .....	232,654	86,815	111,097	125,639	125,232	448,783
5	Gross Profit Or (Loss) (line 3 less line 4) .....	85,930	14,530	24,663	29,072	41,656	109,921
6	General, Selling, And Administrative Expenses .....	53,676	3,274	4,634	4,500	7,121	19,529
7	Net Operating Profit Or (Loss) (line 5 less line 6) .....	32,254	11,256	20,029	24,572	34,535	90,392
Other Income Or (Expense)							
8	Net interest income or (expense) .....	(4,991)	(1,053)	(1,132)	(683)	(296)	(3,164)
9	All other income or (expense) .....	(276)	(569)	(691)	(747)	(381)	(2,388)
10	Total other income or (expense) (lines 8 and 9) .....	(5,267)	(1,622)	(1,823)	(1,430)	(677)	(5,552)
11	Net Profit Or (Loss) Before Taxes (line 7 plus line 10) .....	26,987	9,634	18,206	23,142	33,858	84,840
12	Depreciation and amortization .....	6,327	1,552	1,685	1,711	2,524	7,472

<sup>1</sup> \*\*\* did not provide quarterly data, only annual data.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table 11

## Selected financial data of U.S. producers on their stainless steel sheet and strip operations, 1987-88, and by specified periods, 1985

(In thousands of dollars)

Line No.	Item	Year 1987 <sup>1</sup>	Jan-Mar. 1988 <sup>1</sup>	Apr-June 1988 <sup>1</sup>	July-Sept. 1988 <sup>1</sup>	Oct-Dec. 1988 <sup>1</sup>	Year 1988 <sup>1</sup>
Net sales							
1	Excluding intracompany and intercompany transfers .....	1,519,082	531,983	633,233	637,742	547,066	2,350,024
2	Intracompany and intercompany transfers .....	80,224	23,497	30,709	37,991	27,631	119,828
3	Total net sales (lines 1 and 2) .....	1,599,306	555,480	663,942	675,733	574,697	2,469,852
4	Cost Of Goods Sold (including intracompany and intercompany transfers) .....	1,303,963	455,171	556,216	517,105	486,039	2,014,531
5	Gross Profit Or (Loss) (line 3 less line 4) .....	295,343	100,309	107,726	158,628	88,658	455,321
6	General, Selling, And Administrative Expenses .....	53,908	13,762	16,281	17,506	14,168	61,720
7	Net Operating Profit Or (Loss) (line 5 less line 6) .....	241,435	86,544	91,445	141,122	74,490	393,601
	Other Income Or (Expense)						
8	Net Interest Income or (expense) .....	(26,750)	(5,805)	(6,935)	(5,193)	(4,111)	(22,044)
9	All other income or (expense) .....	(4,384)	(1,269)	(4,348)	(1,971)	(2,186)	(9,776)
10	Total other income or (expense) (lines 8 and 9) .....	31,134	(7,074)	(11,283)	(7,164)	(6,299)	(31,820)
11	Net Profit Or (Loss) Before Taxes (line 7 plus line 10) .....	210,301	79,470	80,162	133,958	68,191	361,781
12	Depreciation and amortization .....	28,569	6,897	6,822	6,795	6,723	27,237

<sup>1</sup> \*\*\* did not provide quarterly data, only annual data.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table 12

## Selected financial data of U.S. producers on their stainless steel bar operations, 1987-88, and by specified periods, 1988

(In thousands of dollars)

Line No.	Item	Year 1987 <sup>1</sup>	Jan-Mar. 1988 <sup>1</sup>	Apr-June 1988 <sup>1</sup>	July-Sept. 1988 <sup>1</sup>	Oct-Dec. 1988 <sup>1</sup>	Year 1988 <sup>1</sup>
Net sales							
1	Excluding intracompany and intercompany transfers .....	***	***	***	***	***	***
2	Intracompany and intercompany transfers .....	***	***	***	***	***	***
3	Total net sales (lines 1 and 2) .....	441,009	146,173	164,379	149,781	160,389	620,722
4	Cost Of Goods Sold (including intracompany and intercompany transfers) .....	390,959	126,190	141,672	130,331	136,446	534,630
5	Gross Profit Or (Loss) (line 3 less line 4) .....	50,050	19,983	22,707	19,450	23,943	86,092
6	General, Selling, And Administrative Expenses .....	45,009	12,931	14,360	12,474	12,605	52,370
7	Net Operating Profit Or (Loss) (line 5 less line 6) .....	5,041	7,052	8,347	6,976	11,338	33,721
Other Income Or (Expense)							
8	Net interest income or (expense) .....	(11,547)	(2,662)	(2,396)	(2,381)	(2,595)	(10,034)
9	All other income or (expense) .....	(2,750)	(3,036)	(3,343)	(3,295)	(2,904)	(12,398)
10	Total other income or (expense) (lines 8 and 9) .....	(14,297)	(5,698)	(5,739)	(5,676)	(5,499)	(22,432)
11	Net Profit Or (Loss) Before Taxes (line 7 plus line 10) .....	(9,256)	1,354	2,788	1,300	5,838	11,280
12	Depreciation and amortization .....	16,880	3,818	3,879	3,722	3,639	15,058

<sup>1</sup> \*\*\* did not provide quarterly data, only annual data.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table 13

## Selected financial data of U.S. producers on their stainless steel wire rod operations, 1987-88, and by specified periods, 1988

(In thousands of dollars)

Line No.	Item	Year 1987 <sup>1</sup>	Jan-Mar. 1988 <sup>1</sup>	Apr-June 1988 <sup>1</sup>	July-Sept. 1988 <sup>1</sup>	Oct-Dec. 1988 <sup>1</sup>	Year 1988 <sup>1</sup>
Net sales							
1	Excluding intracompany and intercompany transfers .....	***	***	***	***	***	***
2	Intracompany and intercompany transfers .....	***	***	***	***	***	***
3	Total net sales (lines 1 and 2) .....	93,435	41,549	45,795	41,707	42,147	171,198
4	Cost of goods sold (including intracompany and intercompany transfers) .....	85,624	36,489	39,387	37,417	37,813	151,106
5	Gross Profit Or (Loss) (line 3 less line 4) .....	7,811	5,060	6,408	4,290	4,334	20,092
6	General, Selling, And Administrative Expenses .....	9,159	3,626	3,982	3,231	3,119	13,958
7	Net Operating Profit Or (Loss) (line 5 less line 6) .....	(1,348)	1,434	2,426	1,059	1,215	6,134
Other Income Or (Expense)							
8	Net interest income or (expense) .....	(2,555)	(447)	(371)	(273)	(285)	(1,376)
9	All other income or (expense) .....	(690)	(294)	(253)	(349)	(291)	(1,187)
10	Total other income or (expense) (lines 8 and 9) .....	(3,245)	(741)	(624)	(622)	(576)	(2,563)
11	Net Profit Or (Loss) Before Taxes (line 7 plus line 10) .....	(4,593)	693	1,802	437	639	3,571
12	Depreciation and amortization .....	4,296	1,249	1,275	1,103	1,058	4,685

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table 14

∞ Selected financial data of U.S. producers on their alloy tool steel products operations, 1987-88, and by specified periods, 1988

(In thousands of dollars)

Line No.	Item	Year 1987 <sup>1</sup>	Jan-Mar. 1988 <sup>1</sup>	Apr-June 1988 <sup>1</sup>	July-Sept. 1988 <sup>1</sup>	Oct-Dec. 1988 <sup>1</sup>	Year 1988 <sup>1</sup>
<b>Net sales</b>							
1	Excluding intracompany and intercompany transfers	359,273	79,583	81,233	75,460	82,050	318,326
2	Intracompany and intercompany transfers	3,616	1,332	986	916	1,274	4,508
3	<b>Total net sales (lines 1 and 2)</b>	<b>362,889</b>	<b>80,915</b>	<b>82,219</b>	<b>76,376</b>	<b>83,324</b>	<b>322,834</b>
4	Cost Of Goods Sold (including intracompany and intercompany transfers)	286,669	59,250	61,048	58,859	61,064	240,221
5	Gross Profit Or (Loss) (line 3 less line 4)	76,220	21,665	21,171	17,517	22,260	82,613
6	General, Selling, And Administrative Expenses	53,957	9,587	9,699	8,357	9,810	37,453
7	Net Operating Profit Or (Loss) (line 5 less line 6)	22,263	12,078	11,472	9,160	12,450	45,160
8	Other Income Or (Expense)						
8	Net interest income or (expense)	(11,894)	(845)	(736)	(779)	(826)	(3,186)
9	All other income or (expense)	(1,961)	(361)	(324)	(544)	(370)	(1,599)
10	<b>Total other income or (expense) (lines 8 and 9)</b>	<b>(13,855)</b>	<b>(1,206)</b>	<b>(1,060)</b>	<b>(1,323)</b>	<b>(1,196)</b>	<b>(4,785)</b>
11	<b>Net Profit Or (Loss) Before Taxes (line 7 plus line 10)</b>	<b>8,408</b>	<b>10,872</b>	<b>10,412</b>	<b>7,837</b>	<b>11,254</b>	<b>40,375</b>
12	Depreciation and amortization	14,377	1,606	1,557	1,574	1,485	6,222

<sup>1</sup> \*\*\* did not provide quarterly data, only annual data.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table 15

## Capital expenditures by U.S. producers for their operations producing stainless steel and alloy tool steel, by products, 1967-88

(In thousands of dollars)

Item	1987	1988
All operations producing stainless steel and alloy tool steel products:		
Land and land improvement	1,990	3,829
Building or leasehold improvements	8,904	11,749
Machinery, equipment, and fixtures	89,485	127,613
Total	100,079	143,194
All operations producing stainless steel and alloy tool steel products subject to relief:		
Land and land improvement	1,325	2,828
Building or leasehold improvements	6,068	9,118
Machinery, equipment, and fixtures	69,271	89,672
Total	76,664	101,621
Stainless steel plate:		
Land and land improvement	0	0
Building or leasehold improvements	158	74
Machinery, equipment, and fixtures	2,380	5,379
Total	2,538	5,453
Stainless steel sheets and strip:		
Land and land improvement	60	552
Building or leasehold improvements	3,275	5,694
Machinery, equipment, and fixtures	29,451	33,271
Total	32,786	39,520
Stainless steel bar:		
Land and land improvement	785	1,368
Building or leasehold improvements	1,659	1,781
Machinery, equipment, and fixtures	25,655	31,613
Total	28,099	34,762
Stainless steel wire rod:		
Land and land improvement	***	***
Building or leasehold improvements	***	***
Machinery, equipment, and fixtures	4,514	7,467
Total	5,194	8,836
Alloy tool steel, all forms:		
Land and land improvement	***	***
Building or leasehold improvements	***	***
Machinery, equipment, and fixtures	7,271	11,942
Total	8,047	13,050

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

**Table 16**

**Research and development expenses by U.S. producers for their operations producing stainless steel and alloy tool steel, by products, 1987-88**

(In thousands of dollars)

<i>Item</i>	1987	1988
All operations producing stainless steel and alloy tool steel products .....	42,467	42,306
All operations producing stainless steel and alloy tool: steel products subject to relief .....	33,603	35,179
Stainless steel plate .....	***	***
Stainless steel sheets and strip .....	***	***
Stainless steel bar .....	5,766	5,386
Stainless steel wire rod .....	***	***
Alloy tool steel, all forms .....	4,063	2,569

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

**Table 17**

**Projected capital expenditures and expenditures on research and development by U.S. producers for their operations producing stainless steel and alloy tool steel products subject to relief, 1988-90**

(In thousands of dollars)

<i>Item</i>	1988	1989	1990
Capital expenditures:			
Projections made in March 1988 .....	114,956	90,251	( <sup>1</sup> )
Projections made in March 1989 .....	( <sup>2</sup> )	161,249	147,078
Research and development expenditures: <sup>3</sup>			
Projections made in March 1988 .....	33,953	34,123	( <sup>1</sup> )
Projections made in March 1989 .....	( <sup>2</sup> )	38,515	38,600

<sup>1</sup> Data not requested.

<sup>2</sup> Not applicable.

<sup>3</sup> Research and development includes the further development of present products, development of new or improved products, manufacturing methods, testing of new materials, and pure research.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.



Table 18

Capital expenditures as a share of cash flow, and research and development expenditures as a share of total net sales, by product, 1980-88

(In percent)

Item/year	Stainless steel				Alloy tool steel, all forms
	Plate	Sheets and Strip	Bar	Wire rod	
Capital expenditures as a share of cash flow <sup>1</sup>					
1980	20.4	36.4	27.4	419.6	24.0
1981	47.8	180.3	51.0	<sup>2</sup> (791.5)	38.1
1982	<sup>2</sup> (24.7)	108.2	<sup>2</sup> (278.6)	<sup>2</sup> (100.4)	<sup>2</sup> (187.6)
1983	<sup>2</sup> (47.1)	60.5	<sup>2</sup> (1,594.5)	<sup>2</sup> (93.1)	65.0
1984	58.0	23.2	73.8	<sup>2</sup> (174.2)	17.4
1985	39.5	34.6	357.6	<sup>2</sup> (317.0)	62.5
1986	22.6	23.2	109.5	<sup>2</sup> (1015.6)	101.8
1987	7.6	13.7	3.7	<sup>2</sup> (17.5)	35.3
1988	5.9	10.2	132.0	107.0	28.0
Research and development expenditures as a share of total net sales					
1980	0.15	0.43	1.38	2.21	0.72
1981	0.20	0.43	1.48	2.50	0.87
1982	0.26	1.45	2.11	4.64	1.15
1983	0.17	0.30	3.36	4.12	1.20
1984	0.05	0.78	1.43	3.41	0.93
1985	0.05	0.82	1.59	2.60	1.33
1986	<sup>3</sup> 1.70	<sup>3</sup> 2.16	1.94	2.86	1.57
1987	0.54	1.25	1.31	2.14	1.12
1988	0.29	0.95	0.86	1.15	0.79

<sup>1</sup> Stainless steel plate, sheet and strip, and alloy tool steel data may be somewhat overstated for 1979-81, and stainless wire rod and alloy tool steel data may be somewhat overstated for 1985, due to failure of some companies to provide depreciation expenses.

<sup>2</sup> Parentheses signify that companies reported negative cash flow for the period indicated.

<sup>3</sup> One firm revised its method of reporting research and development expenditures in 1986 to reflect broader coverage of expenditures. The firm did not revise its expenditures for prior years.

Source: For 1979-81, Stainless Steel and Alloy Tool steel: Determinations of the Commission in Investigations No. TA-201-48 under Section 201 of The Trade Act of 1974, Together with the Information Obtained in the Investigation, USITC Publication 1377, May 1983. For 1982-88, compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

## Efforts of U.S. Stainless and Alloy Tool Steel Producers To Adjust to Import Competition

Actions taken by U.S. producers of stainless and alloy tool steel in order to compete more effectively with both domestic and foreign competitors are identified below. The report is based on information provided by companies responding to the Commission's questionnaires, supplemented by information obtained from trade publications as noted.

Capital expenditures in 1988, and projected capital expenditures in 1989-90, by producer, are presented in table 21. The tables indicate how much is being spent by each company and projected spending for the next two years.

### Al Tech Specialty Steel Corporation

In 1988, Al Tech, a Canadian-owned company which produces stainless steel bar, rod, wire, and alloy tool steels, spent \* \* \*

\* \* \* \* \*

### Allegheny Ludlum

\* \* \* \* \*

The company decided to significantly expand sheet and strip production and finishing capacity so as to meet the rising domestic and export demand for stainless steel sheet and strip (total shipments by domestic producers rose 12 percent in 1988, after rising by 23 percent in 1987). This was realized through the acquisition of the Vandergrift, PA plant from USX in early 1988; Vandergrift, which finishes stainless and electrical steels, had been idled when USX decided to abandon the specialty steel market. A-L plans to purchase a state-of-the-art computer controlled 52-inch Sendzimir cold rolling mill for installation at Vandergrift; it would become operational during the third quarter of 1989,<sup>1</sup> increasing total rolling capacity by approximately 30 percent. The capital investment in the new mill will be approximately \$25 million, and represents part of the company's previously announced plans to invest about \$50 million in the Vandergrift facility over the next 3 to 5 years.<sup>2</sup> In addition A-L is rebuilding the hot-strip mill at Brackenridge, at a cost of another \$35 million,<sup>3</sup> with the possible addition of a second continuous caster.

<sup>1</sup> "Allegheny Ludlum Expands on Back of Acquisition," *Metal Bulletin Monthly*, December 1988.

<sup>2</sup> *Ibid.*

<sup>3</sup> "A-L Hikes Capital Spending," *American Metal Market*, November 14, 1988.

A-L also established a new subsidiary in 1988, and invested \$25 million into a Chicago-based leveraged buyout investment firm with the intention of making acquisitions.<sup>4</sup>

### Armco

As of January 1, 1988, Armco split its specialty steel division along produce lines—Armco Advanced Materials, Butler, PA (including the plants at Butler, PA, Zanesville, OH, and Wildwood, FL) which produces flat-rolled products (sheet and strip), and pipe and tube, and Baltimore Specialty Steel Corp, Baltimore, MD, which produces long products—bar, rod, wire, ingots and billets.<sup>5</sup> \* \* \*

Armco is investing about \$60 million (some project financing is being provided by C.Itoh, a Japanese trading company) in a new cold-rolling mill at the Butler plant, with a start-up projected for mid-1990. The new mill replaces outdated equipment to make thinner gauge (under 0.010 inches) stainless steels and electric steel strip.<sup>6</sup> \* \* \*

Armco incurred capital expenses \* \* \*

### Avesta Inc.

Avesta (Ingersoll Steel Division of Avesta Inc), a producer of stainless steel plate, made capital expenditures \* \* \*

### Braeburn Alloy Steel Division

As of the end of December 1987, Braeburn Alloy, which produced tool and high-speed steels, closed its melt shop and took other actions that caused it to cease being a steelmaker; the company liquidated inventories of high-speed steel at its warehouses in Chicago, Detroit, Los Angeles, and Worcester (MA), reduced its sales force,<sup>7</sup> and currently only processes tool and alloy steels on a toll basis for other steelmakers, fabricators, service centers and end-users. \* \* \*. CCX Corp., Braeburn's parent company, sold the assets of the division to Tool Steel Service Inc., Chicago, IL during March 1988.<sup>8</sup>

### Carpenter Technology Corporation

Carpenter Technology (CarTech), a producer of stainless steel sheet and strip, bar, wire rod, and alloy tool steel, \* \* \*

<sup>4</sup> *Ibid.*

<sup>5</sup> "Armco Specialty Steels to Split into Two Units," *American Metal Market*, December 14, 1987.

<sup>6</sup> "C.Itoh to Help Fund \$60M Armco Mill," *American Metal Market*, December 22, 1987.

<sup>7</sup> "Braeburn Alloy Steel Assets Sold by CCX to Tool Steel Service," *American Metal Market*, March 28, 1988, which notes that the company stopped melting operations in 1987 as a result of a patent infringement suit filed that same year by Crucible Materials Corp.

<sup>8</sup> "Braeburn Alloy Steel Assets Sold by CCX to Tool Steel Service," *American Metal Market*, March 28, 1988.

\* \* \*. These are part of a now-completed \$400 million expansion and modernization program, of which the primary elements are a continuous caster, a \* \* \* rotary forge, and a \* \* \* hot rolling mill for the production of stainless steel machining bars, tool and die steels, and high temperature electronic and corrosion resistant alloys.<sup>1</sup> The bar mill allows in-line processing of billets to bar and rod.

\* \* \* \* \*

Reflecting downstream integration trends in common with the carbon steel industry, CarTech is using more of its production of stainless steel wire rod of Type 430 from Reading, PA at its own redraw operation at Orangeburg, SC, and has stated that as of Jan. 1, 1989 it will no longer supply the grade to redrawers.<sup>2</sup>

### Champion Steel Co.

Champion Steel, which produces alloy tool steel, \* \* \*.

### Columbia Tool Steel Co.

At the end of 1987, Columbia Tool Steel Co. stopped producing tool, die and high speed steels, citing competitive pressures from alternative materials (carbide coated steels and ceramics) and imports.

### Crucible Specialty Metals Division

Crucible Specialty Metals Division (CSM) is an operating unit of Crucible Materials Corp., producing stainless steel bar and wire rod, and alloy tool steels. \* \* \*.

### Cyclops Industries

#### Coshocton Stainless Division

Coshocton Stainless Division specializes in the production of stainless steel sheet and strip. \* \* \*.

<sup>1</sup> "CarTech Completes Expansion Programme," *Metal Bulletin Monthly*, December 1988.

<sup>2</sup> "Stainless Redrawers Face Supply Shortage," *American Metal Market*, October 20, 1988. Also, The American Wire Producers Association indicated in their short supply requests that CarTech was no longer supplying the domestic re-draw industry with this grade of wire rod. (See short supply section.) Slater Steel and Charter Manufacturing Co. began shipping up to 600 tons per month to the redrawers ("Wire Drawers to Get Rod from Slater Unit," *American Metal Market*, October 31, 1988).

Cyclops purchased the assets of Eastern Stainless Steel, Cockeysville, MD from its parent company Eastmet (which had entered Chapter 11 in January 1986), for about \$53 million in cash and securities, on July 31, 1988.<sup>3</sup> The assets purchased included melting, casting, and plate and sheet finishing facilities. Eastern Stainless produces about 120,000 tons per year of stainless steel plate, accounting for approximately 30 percent of the domestic market by tonnage.<sup>4</sup> Effective integration between production operations is reportedly achieved: Cyclops can now supply a full-range of flat-rolled stainless steel plate, sheet and strip, given the similarity of productions (Eastern Stainless produces plate, while Coshocton produces sheet and strip); Eastern represents an assured source of supply of stainless steel slab materials for Coshocton's finishing facilities (which had lacked furnace capacity), or can supply slab for the hot rolling mill at another Cyclops' division, Empire-Detroit, Mansfield, OH.<sup>5</sup>

In order to further align product capabilities, the production of 48-inch-wide sheet was transferred from Coshocton to Eastern, allowing Coshocton to refocus on end user sheet and strip markets. Cyclops plans to improve capacity by almost 50 percent via upgrades in the electric arc furnace and continuous caster,<sup>6</sup> with an initial capital investment of \$3 million during 1988, and a total capital investment of \$12 million between 1988 and 1993,<sup>7</sup> and to reopen Eastern in early 1989.

#### Cytemp Specialty Steel Division

Cytemp, which specializes in the production of stainless steel bar and alloy tool steel bar, \* \* \*.

Cytemp Specialty Steel division withdrew from the last vestiges of its traditional business in high-speed tool steels in 1988, reflecting the final stage of the company's decision, made in 1984, to make only direct sales to major toolmakers, but gradually to exit the tool and die steel business. The company intends to concentrate on metal powders, high temperature alloys and

<sup>3</sup> "Cyclops in Deal with Eastmet for Eastern Stainless Division," *American Metal Market*, March 14, 1988.

The sale was approved by the bankruptcy judge in July, "Bankruptcy Court Approves Sale of Eastern Stainless to Cyclops," *American Metal Market*, July 13, 1988.

<sup>4</sup> "Cyclops Makes Unsolicited Bid to Purchase Eastern Stainless," *American Metal Market*, December 10, 1987.

<sup>5</sup> "New Cyclops Subsidiary to Operate Eastern Stainless Steel Disclosed," *American Metal Market*, May 11, 1988.

<sup>6</sup> *Ibid.*

<sup>7</sup> "Eastmet in Final Talks with Cyclops on Sale of Eastern Stainless," *American Metal Market*, March 11, 1988.

stainless steels.<sup>1</sup> Cytemp opened a UK sales office and increased sales staff in Europe, with the intent of increasing exports of stainless and alloy steel bar to the aerospace and power generation markets.<sup>2</sup>

Cyclops announced in February 1988 that Cytemp Specialty Steel, and four other divisions were for sale in order to allow the parent company to concentrate on core operations of flat-rolled stainless and carbon steels and tubular products, as well as recoup some of the purchase costs of Eastern Stainless.<sup>3</sup> Cyclops and Special Metals & Technologies Corp. (SMT) signed a letter of intent on Nov. 1, 1988 intending to sell Cytemp to SMT,<sup>4</sup> although the proposed sale fell through in January 1989, when the parties failed to come to agreement on the worth of Cytemp.<sup>5</sup>

### Eastern Stainless Corporation

In 1988, Eastern Stainless, which produces stainless steel plate, \* \* \*

As noted above, Cyclops Industries completed the purchase of the assets of Eastern Stainless Steel in July 1988, utilizing the melting facilities of Eastern to produce stainless steel slab materials for its rolling facilities at Coshocton.

### A. Finkl and Sons Co.

In 1988, A. Finkl, a producer of alloy tool steel, \* \* \*

### J&L Specialty Products Corp.

J&L Specialty Products, a producer of stainless steel sheet and strip, and plate, \* \* \*

<sup>1</sup> See, "Cytemp Latest to Limit High-Speed Steel Sales," *American Metal Market*, January 5, 1988, which describes the tool steel market as mature and where substitutes (carbide and ceramic cutting tools), as well as coatings (such as titanium nitride) have reduced the demand for high-speed steel. Other companies which departed the tool steel arena were Columbia Tool and Braeburn Alloy Steel.

<sup>2</sup> "Cytemp Plans UK Expansion," *Metal Bulletin*, May 19, 1988.

<sup>3</sup> "Cyclops Puts Cytemp Specialty Steel, Detroit Strip on Block," *American Metal Market*, February 17, 1988. See also, "Cyclops Puts Bar Works up for Sale," *Metal Bulletin*, February 22, 1988. Both indicated that while core businesses were profitable, the stainless bar market and other non-core businesses were loss-makers, threatening the profit of the entire corporation. Negotiations for the five units were said to be progressing, but all five would be sold separately.

<sup>4</sup> "Special Metals Plans to Buy Cytemp," *American Metal Market*, November 2, 1988. A subsidiary of SMT, Special Metals Inc., New Hartford, NY and Cytemp are considered the number 1 and number 3 suppliers, respectively, of superalloy bar and billet, most of which goes into jet engine components, possibly yielding economies of scale in production.

<sup>5</sup> "Cyclops Breaks off Talks on Cytemp," *Metal Bulletin*, Feb. 2, 1989.

\* \* \* \* \*

Effective December 31, 1987, J&L was acquired by Specialty Materials Corp., a newly formed holding company, which also owns the Midland Terminal Co., a short-line railroad.

### Jessop Steel Company

In 1988 Jessop Steel Co., a producer of stainless steel plate and alloy tool steels, \* \* \*

\* \* \* \* \*

In a late development, reported Dec. 30, 1988, Jessop's assets were tentatively sold to a limited partnership consisting of Jessop, its senior management, and several employees of Drexel Burnham Lambert Inc, by parent company Athlone Industries. The reported value of the transaction is \$132.5 million in cash plus \$15 million in 12 percent preferred stock plus 49 percent of the common stock in the partnership. Athlone expects to realize a pretax gain of \$105 million on the transfer, which will be used to reduce debt service costs.<sup>6</sup>

### Latrobe Steel

In 1988, Latrobe Steel, a producer of alloy tool steel, \* \* \*

### LTV Steel Co.

LTV, which produces stainless steel sheet and strip, bar, and wire rod, \* \* \*

### Maryland Specialty Wire, Inc.

Maryland Specialty discontinued production of high-speed tool steel and wire, the only portion of its production line subject to investigation on December 31, 1986. \* \* \*. The company operates as an independent redrawer of wire from purchased stainless steel and alloy steel wire rod. (Please refer to Appendix B on short supply requests filed by wire drawers.)

### Mercury Stainless Inc.

Mercury Stainless Inc. (MSI), which processes stainless steel sheet and strip, and plate,<sup>7</sup> \* \* \*.

<sup>6</sup> "Jessop's Assets Tentatively Sold," *American Metal Market*, Dec. 30, 1988.

<sup>7</sup> Mercury is the sole U.S. producer of 60 inch-wide stainless steel sheet, a market that consumes about 50,000 tons per year, with offshore producers accounting for about half, according to industry sources. However, as an indication of the market's buoyancy, a research organization polled consumers for interest in another 60 inch-wide sheet mill, which as a greenfield project, might cost \$32-35 million. See, "60-inch Stainless Sheet Mart Studied," *American Metal Market*, October 12, 1988.

Mercury Stainless is the successor company to Enduro Stainless, a re-roller, which went into bankruptcy as a result of a dispute with its former owner, LTV Steel. Mercury spent approximately \$3 million in 1986 to modernize and upgrade the equipment at the Enduro facility, and started production again in January 1987. In 1988, Mercury Stainless Corp., the parent corporation, purchased Washington Steel Corp. for a price of \$260 million in cash, \$5 million in subordinated debt, and a cash price adjustment of \$25 million, for a total of about \$290 million. Mercury had no raw steelmaking capacity prior to the transaction, and the transaction secures an assured, reliable source of stainless hot bands (the primary raw material for MSI's operation) for Mercury. Mercury, which owns six service centers in the United States and Canada, thus became the only service center to integrate upstream into steelmaking.<sup>1</sup>

### **Slater Steel Corp., Fort Wayne Specialty Alloys Division**

Slater Steels, which produces stainless steel bar and small amounts of tool steel, \* \* \*.

Slater expended the bulk of the funds on a continuous bar mill project, which was started up in September 1988.<sup>2</sup> The new mill should lower production costs, and allow the expansion of the company's product lines into other shapes (particularly the 1 1/2 inch and under diameter bar) and grades.<sup>3</sup> Slater has experimented with rolling one grade, H-13, of tool steel, and intends to expand H-13 production into smaller diameters and other cold-work grades. Because of the increased rolling capacity, Slater intends to increase melting capacity as well. With these improvements, Slater becomes capable of producing stainless steel wire rod (see section on short supply), although it might be two years before the necessary ancillary equipment is in place to begin production.<sup>4</sup>

Changes on the bar mill are projected to increase capacity to produce structural shapes as well, particularly stainless steel angles, where Slater is the sole producer in the United States. Stainless steel structurals are used in the food processing and petrochemical industries; imports reportedly supply up to 75 percent of the market.<sup>5</sup>

<sup>1</sup> "\$300M Sale Set," *American Metal Market*, August 19, 1988. In related news, another flat-rolled product service center, Combined Metals of Chicago Limited Partnership, acquired the stainless steel strip rolling and wire drawing mill, Elgiloy Co., Elgin, Ill. However, the latter company does not engage in production subject to this investigation.

<sup>2</sup> "Stainless Wire Rod Next Slater Mart?" *American Metal Market*, September 16, 1988.

<sup>3</sup> Ibid.

<sup>4</sup> "Stainless Redrawers Face Supply Shortage," *American Metal Market*, October 20, 1988.

<sup>5</sup> "Demand for Stainless Angles Strong; Prices Rise 10% to 20%," *American Metal Market*, Feb. 29, 1988.

### **Talley Metals Technology**

Talley Metals Technology, a producer of stainless steel bar and wire rod, \* \* \*.

### **Teledyne Vasco**

Teledyne Vasco, a producer of alloy tool steel products, \* \* \*.

### **Washington Steel Corporation**

In 1988, Washington Steel, a producer of stainless flat roll (stainless steel plate, and sheet and strip), \* \* \*.

Washington Steel was sold to Mercury Stainless, over 12 other companies, in August 1988 in a transaction valued at \$290 million.<sup>6</sup> The parent company, Blount Inc., stated that the divestiture would allow it to reduce debt and interest costs on other projects. The sale represents for Mercury an upstream integration between service center-distributor and steelmaker, while providing Washington Steel with an in-house distribution network for its products.<sup>7</sup>

## **Major Foreign Suppliers of Stainless and Alloy Tool Steels to the United States**

Table 19 presents data on stainless steel production, consumption, imports, and exports in selected countries. As indicated, the two largest producers are Japan, and the United States, which also account for most of the consumption of stainless steels. Following the table is information on developments in major foreign specialty steel industries which export to the United States.<sup>8</sup>

### **Austria**

Austria's only producer of specialty steel in 1988 was Boehler GMBH Kapfenberg, a subsidiary of Voest-Alpine Steel Holding AG, which is itself a state-owned company that produces and consumes small quantities of specialty steel products. Boehler arose from another reorganization of Austria's state-owned industries in 1988, in which the subsidiary which previously produced various specialty steel products, Vereinigte Edelmetallwerke (VEW), was renamed Boehler. Boehler only produces stainless steel plate, sheet, strip, bar and alloy tool steel.<sup>9</sup>

<sup>6</sup> "Mercury's Market Plan Worries Distributors," *American Metal Market*, Aug. 24, 1988.

<sup>7</sup> "Blount Considering Bids for Washington Steel," *American Metal Market*, Aug. 10, 1988.

<sup>8</sup> See appendix D for a discussion of an investigation currently underway involving certain EC producers.

<sup>9</sup> *Iron and Steel Works of the World*, London: Metal Bulletin Books, 9th Edition (1988). It is believed that the Austrian definition of stainless and alloy tool steels encompasses a broader definition than those products covered by the investigation.

Table 19

Stainless steel: Production, imports, exports, and apparent consumption, by country, 1987

(1,000 metric tons)

Country	Production	Imports	Total exports	To U.S.	Apparent consumption <sup>1</sup>
Japan	2,250	19	788	76	1,480
United States	1,287	269	76	(2)	1,480
West Germany	805	811	844	12	770
France	510	339	646	31	315
Italy	435	269	196	8	505
Sweden	355	47	288	26	110
United Kingdom	295	313	366	14	243
Spain	250	67	196	23	120
Finland	162	90	197	8	56
Belgium	150	392	458	3	66
Brazil <sup>2</sup>	128	12	(4)	(4)	(4)
Taiwan <sup>3</sup>	104	109	(4)	(4)	(4)
Canada <sup>3</sup>	68	87	(4)	(4)	(4)
South Korea <sup>3</sup>	48	426	63	(4)	(4)
Austria	38	25	24	0	39

<sup>1</sup> Apparent consumption is the sum of domestic production (or shipments) plus imports minus exports, adjusted for hire rolling.

<sup>2</sup> Not applicable.

<sup>3</sup> Estimated by the staff of the U.S. International Trade Commission. Assumes a raw steel to finished product yield of 80 percent.

<sup>4</sup> Not available.

Source: *World Stainless Steel Statistics*, 1988 ed., Inco Europe Ltd. except as noted.

Preliminary estimates for 1988 show finished production amounted to 140,000 metric tons (mt) on a raw steel production capacity basis of 175,000 mt. Because of company restructuring, Austrian production declined by about 15 percent from 1986 to 1988.<sup>1</sup> Exports were approximately 80 percent of production, or 110,000 mt. The company suffered a loss in 1988 of Sch300 million (\$22.5 million), associated with high overhead costs, and has initiated a cost-cutting program so as to balance its budget by 1990.<sup>2</sup>

Boehler is installing a new rolling mill to replace its 50,000 ton per year bar and rod mill, aiming to commission it in May 1988 at cost of Sch840 million. The company is aiming to double output and be able to produce higher alloy steel. Full production is to start during the first quarter of 1989.<sup>3</sup>

### Belgium

There were two producers of stainless steel products in Belgium in 1988: ALZ NV and S.A. Fabrique de Fer de Charleroi. Both made stainless steel sheet, strip, and plate. There were no producers of alloy tool steel.

ALZ NV nearly completed an investment project in 1988 to replace existing melting, steelmaking, and cold-rolling equipment. Its new furnace, and metallurgy station also raises annual capacity, in stages, from 140,000 mt to 360,000

<sup>1</sup> U.S. Department of State telegram, February 1989; estimated by the staff of the U.S. International Trade Commission.

<sup>2</sup> U.S. Department of State telegram, February 1989.

<sup>3</sup> "Boehler set to commission new mill," *Metal Bulletin*, Mar. 31, 1988.

mt. The two meter-wide cold rolling mill is projected to become operational in June 1989.<sup>4</sup>

Production of stainless steels in 1987 reached 182,000 metric tons, representing an increase of 10 percent over 1986 levels.<sup>5</sup> Capacity and capacity utilization rates are not available.

### Brazil

There were five Brazilian producers of stainless and alloy tool steel products in 1988. Acos Ipanema (Villares) S.A. produces stainless wire rod, bar, and tool steel;<sup>6</sup> Acos Villares S.A. produces stainless wire rod, bar, and wire products, and tool steel; Eletrometal S.A. produces stainless bar, wire rod, and shapes; Companhia Acos Especiais Itabira (Acesita), the largest producer, specializes in flat products, but also produces long products of stainless steel;<sup>7</sup> Villares Ind. de Base S.A. (Vibasa) produces bar and rod, and tool steel. With the exception of Acesita, the companies are privately owned; Acesita belongs to the Banco do Brasil, which recently formed a working group to examine how to proceed with privatization.

<sup>4</sup> *Iron and Steel Works of the World*, 1988.

<sup>5</sup> Compiled from *World Stainless Steel Statistics*, published by International Nickel Inc., 1988 edition.

<sup>6</sup> Villares underwent a name change to the present Acos Ipanema, when it acquired Siderurgica Nossa Senhora da Aparecida S.A. (Aparecida), another producer of stainless bar, rod and tool steel. U.S. Department of State telegram, February 1989.

<sup>7</sup> "Nickel Worker Strikes Halt Acesita Flat-Rolled Stainless Production," *American Metal Market*, Dec. 21, 1988, noted Acesita's annual production of 120,000 tons of unfinished, flat-rolled stainless steel products, plus about 3,000 tons produced annually of non-flat-rolled.

Acesita has moved to install a ladle furnace and ancillary equipment to improve its flexibility in the production of stainless, silicon and other specialty steels. Acesita presently has capacity to produce 160,000 mt per year, but wants to increase it to 220,000 mt so as to match rolling capacity. The company plans to install a third electric arc furnace (EAF) and additional argon-oxygen decarburization (AOD) refining facilities, but the funds have not yet been approved by the government.<sup>1</sup> Acesita's output was approximately 8,300 mt per month versus a capacity of 10,700 tons per month for stainless flat products.

In December 1988 Acesita, which had worked from inventories since October, temporarily halted the production and export of stainless steel due to a lack of ferro-nickel and ferro-chrome supplies. Brazil's largest ferro-nickel producer ceased domestic sales in October, and diverted production to the export market reportedly because of government price controls and the company's refusal to sell at local prices.<sup>2</sup> In addition, strikes by nickel workers disrupted production at the country's two largest producers, compounding the shortages. CACEX, the Brazilian import licensing agency, granted an import license for 150 tons of ferro-nickel from Norway or Canada.<sup>3</sup> In the meantime, an agreement on domestic prices between the government and ferrochrome producers alleviated some shortages of that input, allowing Acesita to resume some production of some grades.<sup>4</sup> Banco do Brasil indicated that Acesita's losses in 1988 were partly due to government controls on steel prices.<sup>5</sup>

### Canada

There are two companies producing stainless and alloy tool steels in Canada. One is Slater Steels' Sorel Forge Division, which produces forged semifinished forms, and bars of stainless steels via an electric arc furnace; its annual capacity is about 20,000 mt on a raw steel capacity of about 30,000 mt. Slater operates a subsidiary in the United States, the Fort Wayne Specialty Alloys Division. The other Canadian company comprises the two operating divisions of Rio Algom, a large multinational mining company; Atlas Specialty Steels and Atlas

Stainless Steels. Atlas Specialty Steels produces long products (semifinished forms, bar, and rod), whereas Atlas Stainless produces flat-rolled products (hot- and cold-rolled band and strip). The company also produces alloy tool and high-speed steels. Atlas is related to Rio Algom's other subsidiary in the United States, Al Tech Specialty Steel, which rolls billet imported from and produced by Atlas Specialty. Raw steelmaking capacity for Atlas is approximately 415,000 mt per year.<sup>6</sup>

Rio Algom announced that its two divisions and U.S. subsidiary would be divested in order to allow it to devote corporate resources to its mining businesses; a number of companies have made the necessary investigation, but no conclusion has yet been announced.

In general the U.S. specialty steel industry views the new Canada-United States Free Trade Agreement, which became effective on Jan. 1, 1989, in a favorable light. The agreement provides for a staged reduction of tariffs to zero over ten years. Industry spokesmen have stated that its members are competitive with imports from Canada, and that Canada does not have the capacity to increase exports above the 21,000-23,000 mt exported during 1981-87. There is the reservation, however, that other countries might try to circumvent import restrictions by transshipping through Canada, or arranging to have their products transformed in Canada for sale in the United States.<sup>7</sup>

### France

There are about four companies in France which produce stainless and alloy tool steels: The largest is part of the state-owned steelmaker, Usinor Sacilor. Others are: Aubert et Duval, which produces billets and bar shapes; Commentryenne des Aciers Fins Vanadium Alloys, which produces high-speed bar, sheet and wire rod; and Acieries et Laminoirs du Saut du Tarn, which produces bars and shapes.<sup>8</sup>

During 1987, French state-owned stainless and specialty metal operations were merged under Usinor-Sacilor umbrella to form Ugine-Aciers de Chatillon et Gueugnon (Ugine-Aciers, which produces stainless sheet and strip), Ugine-Savoie, GIE Ugine-Service, and Imphy SA (which produce stainless steel and alloy steel bar products). The company has acknowledged increasing profits during 1987 and 1988, partly as a result of the reorganization and partly as a result of the upturn in demand and prices in Europe. Ugine-Aciers recorded operating income (profit) of FFr 293 million in

<sup>1</sup> "Acesita installs ladle furnace," *Metal Bulletin*, Sept. 26, 1988.

<sup>2</sup> "Nickel Worker Strikes Halt Acesita Flat-Rolled Stainless Production," *American Metal Market*, Dec. 21, 1988.

<sup>3</sup> "Acesita Halts Production of Stainless Steel," *American Metal Market*, Dec. 8, 1988; "Nickel Worker Strikes Halt Acesita Flat-Rolled Stainless Production," *American Metal Market*, Dec. 21, 1988; "Acesita Waiting for Ferronickel," *American Metal Market*, Dec. 26, 1988. Also, "Acesita Halts All Stainless Output," *Metal Bulletin*, Dec. 8, 1988, and "Acesita Resumes Output Slowly," *Metal Bulletin*, Dec. 15, 1988.

<sup>4</sup> "Acesita Resumes Output Slowly," *Metal Bulletin*, Dec. 15, 1988.

<sup>5</sup> "Acesita installs ladle furnace," *Metal Bulletin*, Sept. 26, 1988.

<sup>6</sup> *Iron and Steel Works of the World*, 1988.

<sup>7</sup> C. Philip Weigel, President and CEO, Latrobe Steel Co., on behalf of the Specialty Steel Industry of the U.S. before the Senate Steel Caucus on May 11, 1988, quoted in "Specialty Steel Eyes Canada Mart," *American Metal Market*, Sept. 13 and 14, 1988.

<sup>8</sup> *Iron and Steel Works of the World*, 1988.

1987,<sup>1</sup> and projected earnings of FFr 450 million on sales of FFr 6 billion for 1988. The parent corporation, Usinor-Sacilor, which also produces carbon steels, recorded a profit in 1988,<sup>2</sup> for the first time in 13 years.

Ugine-Aciers expects to produce almost 400,000 mt of stainless steel cold-rolled sheet and strip in 1988 (up from 352,000 mt in 1987), while long product production is expected to remain at approximately 122,000 mt.<sup>3</sup>

Ugine-Aciers acquired stainless steel tube producer SMCM in February 1988; SMCM was previously its largest customer.<sup>4</sup> The company also purchased a 42 percent equity interest in Acinoxsa, a Spanish stainless service center (with 10 outlets) and maker of stainless welded tube.<sup>5</sup>

French raw steel production rose to 700,000 mt in 1987, an increase of 15 percent over 1986 production levels.<sup>6</sup> Capacities and capacity utilization rates are not available.

## Finland

Outokumpu OY, a state-owned multimetal company, was the sole producer of stainless steel in Finland in 1988. The company, which is the world's only steel producer in possession of a complete production chain from chromium ore to finished steel products, produces stainless steel plate, sheet, and strip.<sup>7</sup>

In 1988, Outokumpu produced approximately 200,000 mt of stainless steel in slab form, which translated into about 180,000 tons of plate, sheet, and strip; this represents an increase of about 12,000 tons over 1987 production levels. The furnaces and cold rolling mills operated at near full capacity during 1988. The company projects increases for 1989 in production, capacity, capacity utilization, shipments and exports in the range of 3 percent, adjusted for consumption growth. About 80 percent of production is exported, the volume of which reached almost 165,000 tons in 1988. Exports to West Germany, the USSR, and Italy accounted for 35 percent of all exports.

Outokumpu is modernizing the pelletization and sintering plants at Tornio, renovating the

<sup>1</sup> "Usinor-Sacilor's Stunning Profit Turnaround," *Metal Bulletin*, May 23, 1988.

<sup>2</sup> "Usinor-Sacilor Recovers, Long Product Revamp," *Metal Bulletin*, June 9, 1988.

<sup>3</sup> *Ibid.*

<sup>4</sup> *Ibid.*

<sup>5</sup> "Ugine buys into Spanish stockist," *Metal Bulletin*, Oct. 20, 1988.

<sup>6</sup> Compiled from *World Stainless Steel Statistics*, published by International Nickel Inc., 1988 edition.

<sup>7</sup> U.S. Department of State telegram, February 1989. Another company, Ovako Steel OY AB, discontinued production of stainless steel bars in 1985; it does not produce the type of alloy tool steel subject to the investigation.

steel mill's smelting plant (requiring an investment of about FMk 160 million or \$38 million), and decided in mid-1988 to build a second Sendzimir rolling mill to increase the company's cold rolling capacity and improve quality and product range. The new Sendzimir mill is scheduled to begin operations by 1990, and increase cold rolling capacity from 140,000 tons to 250,000 tons.<sup>8</sup> Outokumpu is exploring new methods for developing Ferro-Chrome production so as to increase capacity. The company is also exploring producing stainless steels containing less nickel (so as to reduce nickel supply problems), but has been unsuccessful in experimental rolling efforts.<sup>9</sup>

The new hot rolling mill at the Tornio works, Finland's largest industrial investment in 1987 and worth about FMk 700 million (\$167 million) started operating in early 1988. Outokumpu sought to lease hot rolling capacity to other companies. The plant is entitled to tax relief since it is located in Finland's northern under-developed area. Tax relief may also be given for machinery and equipment modernization, if it improves production capacity, processing rates, operational capacity, or goods' quality. The Tornio works are also entitled to a 10 year special depreciation allowance, additional investment deductions in State taxation, and exemptions from property and stamp taxes.

As a State-controlled company, Outokumpu can receive Government funds for plant expansion, and the company's plans for 1988-90 call for annual investments of FMk860 million (\$203 million) in its operating capital to raise the rate of processing and secure raw material supply. The company also receives a payment of FMk 2.35 million (\$550,000) yearly to cover the payment of government interest subsidies on loans taken for the building of the Tornio stainless steel works (the subsidy is available to Outokumpu until the end of 1994).<sup>10</sup>

## Italy

There are believed to be about 15 producers of specialty steel products in Italy,<sup>11</sup> although production is concentrated among the leading four or five firms. The sole producer of stainless steel plate and sheet is ILVA, while the three major producers of stainless steel bar are Deltacogne, Valbruna, and Bolzano; tool steel and alloy steels are also made by the bar producers.

The sole producer of stainless steel sheet, Terni Acciai Speciali, was merged into ILVA

<sup>8</sup> U.S. Department of State telegram, February 1989.

<sup>9</sup> *Ibid.*

<sup>10</sup> U.S. Department of State telegram, February 1989.

<sup>11</sup> *Iron and Steel Works of the World*, 1988.



S.p.A. on December 31, 1988, a result of the long-term financial problems of Finsider, the state-owned steel group. Stainless steel sheet and strip production from two plants totaled 239,300 mt during January–November 1988.<sup>1</sup>

Production is estimated to total 657,000 metric tons in 1988, mostly in the form of stainless steel plate and sheet. This represents an increase of about 15 percent over 1987 production levels.<sup>2</sup> There is no new production planned for 1989. Capacities and capacity utilization rates are unavailable.

## Japan

There were approximately 25 producers of stainless and alloy tool steel products in Japan in 1988, many of which produce a variety of the specialty steel products subject to investigation, as follows: stainless plate, 9 companies; stainless sheet and strip, 14 companies; stainless bar, 12 companies; stainless wire rod, 11 companies; alloy tool steel and high-speed steel products, 13 companies.<sup>3</sup> MITI figures indicate that Japanese stainless output reached a record 2.88 million mt (hot rolled basis) in 1988,<sup>4</sup> up 14 percent over 1987 production levels.

A number of changes occurred in the industry during 1988, including the following: Nippon Stainless Steel Co., Ltd., one of the largest producers, ceased production; Pacific Metals Co., Ltd., a producer of stainless bar, reopened production.

Among the Japanese stainless steel producers, Nippon Yakin has its own nickel refinery, while Nippon Metal imports ferro-nickel and ferro-chrome. Imported raw materials are priced in U.S. dollars; thus Japanese producers were not affected as much by the volatile price movements of nickel and chrome, since the depreciation of the dollar against the yen offset many of the price increases of raw materials denominated in dollars.

According to the Ministry of International Trade and Industry (MITI) in Japan, there were no Government assistance programs designed for the specialty steel industry in 1988. Producers of specialty steel products with 300 or fewer regular employees, or with paid-in capital of Yen 100 million or less are eligible for Government assistance programs for small business.

<sup>1</sup> U.S. Department of State Telegram, March 1989.

<sup>2</sup> Production data compiled from *World Stainless Steel Statistics*, published by International Nickel Inc., 1988 edition, for stainless steel ingots, slabs, blooms, and billets, compared with production reported by U.S. Department of State telegram, January 1989.

<sup>3</sup> U.S. Department of State telegram, February 1989.

<sup>4</sup> "Record Japanese stainless output," *Metal Bulletin*, Feb. 2, 1989, confirms the production figures of U.S. Department of State telegram, February 1989.

The following tabulation shows Japan's production of stainless and alloy tool steel products in 1988 in each of five categories of products, together with the increase over 1987, on a hot-rolled basis:

Category	Production metric tons	Percent increase
Plate .....	240,195	121.3
Sheet and strip .....	1,836,311	113.5
Bar .....	200,009	126.1
Wire rod .....	289,375	112.9
Alloy tool .....	309,668	105.8
<b>Total .....</b>	<b>2,875,558</b>	<b>114.0</b>

Source: U.S. Department of State telegram, February 1989.

Increases in production reflected the increased pace of activity in principal domestic markets (automotive, housing, and construction). Total exports fell to about 90 percent of the 1987 levels; Southeast Asia is Japan's largest stainless export market. Exports to the United States declined during 1988, and ranged from 40 percent to 90 percent of the 1987 levels. Exports of alloy tool and wire rod declined the most, whereas sheet and strip remained relatively constant. Exports to third countries rose.

Ferritic stainless steels (an iron-chromium alloy), as a portion of total output, fell to its lowest level at about 28 percent (compared with 33 percent during 1984), while austenitic stainless steels (an iron-chromium-nickel alloy) rose to 72 percent of total output.

## Mexico

There are 3 producers of stainless and alloy tool steel in Mexico; the primary exports to the United States are in the form of sheet and strip, imported under 806.30 provisions. The producers are as follows (with annual capacities and production in parentheses):<sup>5</sup> Mexinox SA de CV in San Luis Potosi (45,000 mt capacity, with about 33,400 mt production in 1987 of cold rolled sheet and coils), the sole producer of flat products; Acero Solar SA de CV, Mexico (8,000 mt capacity, with about 6,300 mt production of bar and wire in 1986); Industrias CH SA (120,000 mt capacity, 1986 production unknown). There are a number of alloy producers which may produce tool steel.

When Mexican imports of stainless steel sheet and strip exceeded VRA limits by about 2,000 tons, import licenses were suspended.<sup>6</sup>

The overall impact of a ban on imports of stainless steel sheet and strip from Mexico is described by industry sources as "limited" because a much greater amount enters under

<sup>5</sup> *Iron and Steel Works of the World*, 1988.

<sup>6</sup> "Impact of Ban on Mexican Stainless Said Limited," *American Metal Market*, June 10, 1988.

806.30 provisions (steel exported from the United States for processing in a foreign country, and reimported); about 17,000 tons, which is not quota-restricted, versus the 3,000 tons non-806.30 imports in 1988 (the VRA limit is about 1,000 tons).<sup>1</sup> Additionally the annual consumption in the United States of stainless steel sheet and strip is approximately one million tons.

### South Korea

The stainless steel market in South Korea has been strong, driven mostly by demand from the consumer goods sector. Of the three major buyer sectors, tableware and flatware accounts for the bulk of consumption, followed by car manufacture and components for chemical plants.<sup>2</sup> Korean consumption of cold-rolled product is estimated to have totaled 250,000 tons in 1988; since it has risen by 10-12 percent per year, projections show Korean cold-rolled demand at 420,000 tons by 1991.<sup>3</sup>

There is currently one producer of stainless steel sheet in South Korea, Sammi Steel, which produced an estimated 172,000 tons of stainless sheet and coil in 1988,<sup>4</sup> close to its finishing capacity limits of 180,000 tons per year. Sammi imports stainless hot band from Japan to supplement domestic production. Capital expenditures are designated to expand the company's capacity in special bar quality steels.<sup>5</sup>

The country's largest carbon steelmaker, Pohang Iron & Steel Co. Ltd. (Posco) plans to commission a new stainless steel hot-rolling mill during the spring of 1989 (aiming for full production by late 1989),<sup>6</sup> targeting production of approximately 300,000 tons of hot-rolled band; Posco plans to install a cold-rolling mill as well, scheduled to become operational in July 1990, with an annual capacity of 50,000 tons.<sup>7</sup> Posco anticipates exporting about 50 percent of the resultant cold-rolled sheet,<sup>8</sup> transforming Korea from a net importer to net exporter. The project includes the installation of a 60 inch-wide Sendzimir cold rolling mill (Z-mill) at a cost of about \$20 million.<sup>9</sup>

Posco is a joint-venture partner with Inco and Korean Zinc to build and operate a nickel smelter in Korea; the smelter is expected to become

operational in mid-1989, with an initial capacity of 12,000 metric tons per year. As South Korea presently imports all its nickel requirements, the operation would represent a step toward integration into stainless steel's inputs for Posco.<sup>10</sup>

Besides Posco, Korea's largest electric steelmaker, Incheon Iron & Steel, is planning to build its own 50,000 ton per year stainless sheet line that the company hopes to commission by November 1989.<sup>11</sup> Capital expenditures are estimated at about \$70 million.<sup>12</sup>

### Spain

There were at least six Spanish producers of stainless and alloy tool steel products in 1988: Acerinox SA, a producer of a wide variety of finished stainless steel products and Spain's only producer of stainless flat-rolled products; and Acenor (legally constituted by combining five companies), which also produces stainless steel and alloy tool steel. Acenor is composed of SA Echevarria, a producer of bar and rod; Olarra SA, a producer of stainless ingots, billets, and bar; and Roldan SA, a producer of stainless billets, bar, rod, and wire.

Spain's entry to the EC subjects it to the common EC policy on allocation of steel production, although this has not affected stainless steel production in 1988. The Government of Spain allocated Pesetas 30 billion (\$250 million) for the Spanish stainless steel industry to pay off debt and subsidize layoffs; nearly all of this was destined for Acenor,<sup>13</sup> which gave the government effective control over the company. Since the common EC policy also regulates subsidies, the EC Commissioner for Competition has requested the Government of Spain to halt the subsidy payments to Acenor.<sup>14</sup>

Acerinox, reportedly operating at nearly 100 percent capacity, is adding a new Sendzimir cold strip mill which will raise its capacity to about 330,000 mt per year of finished products. The mill is designed to make thin sheet in widths of 1580mm, and complements one existing 1580mm wide Z mill, and two 1280mm wide Z-mills.<sup>15</sup>

Production of stainless steel in Spain rose 17 percent, to 320,000 metric tons in 1987.<sup>16</sup> No data are available on capacity and capacity utilization.

<sup>1</sup> Ibid.

<sup>2</sup> "Korea to Narrow CR Feedstock Gap," *Metal Bulletin Monthly*, September 1988.

<sup>3</sup> Ibid.

<sup>4</sup> Ibid.; projection based on 1987 production of 160,000 tons and company estimates for whole year 1988, and rolling capacity limitations of 180,000 tons.

<sup>5</sup> "Korea to Narrow CR Feedstock Gap," *Metal Bulletin Monthly*, Sept. 1988.

<sup>6</sup> Ibid.

<sup>7</sup> Ibid.

<sup>8</sup> "Posco Eyes Cold-Rolling Mill," *American Metal Market*, Oct. 17, 1988.

<sup>9</sup> "60-Inch Stainless Sheet Mart Studied," *American Metal Market*, Oct. 12, 1988.

<sup>10</sup> "Inco in Korean JV," *Metal Bulletin*, Feb. 6, 1989.

<sup>11</sup> "Korea to Narrow CR Feedstock Gap," *Metal Bulletin Monthly*, September 1988.

<sup>12</sup> Ibid.

<sup>13</sup> U.S. Department of State telegram, March 1988.

<sup>14</sup> "EEC Blocks Aid to Spanish Special Steel," *Metal Bulletin*, Dec. 1, 1988.

<sup>15</sup> "New Z Mill for Acerinox," *Metal Bulletin*, June 16, 1988.

<sup>16</sup> Compiled from *World Stainless Steel Statistics*, published by International Nickel Inc., 1988 edition.

## Sweden

In 1988, Sweden's stainless steel industry consisted of two major groups: Avesta AB, a producer of stainless flat-rolled products; and Sandvik AB, a producer of specialty tubes, strip, and wire. The leading alloy tool steel producer (and reportedly the world's largest) was Uddeholm AB. In addition there is a large and growing Finnish presence on the Swedish market; the Finnish company, Ovako, acquired the Swedish specialty steel company SKF Steel (a producer of tool steel), and intends to rationalize production between the two companies.

Sweden's major specialty steel producers reported improved results for 1987: Sandvik's special steel operations increased profits by 18 percent to Skr291 million (about \$45 million), while Avesta increased its profits by 60.5 percent to Skr398 million (about \$62 million), mostly as a result of increased deliveries of cold-rolled and hot-rolled sheet and plate,<sup>1</sup> on sales of Skr 46 billion (about \$7 billion).<sup>2</sup> Avesta's capital expenditures in 1987 were Skr237 million (\$36 million), including a finishing line for wide cold-rolled sheet and plate, and the stretch-straightening equipment for precision strip. In addition, Avesta acquired a total of ten sales companies in Europe; the company exports between 60 percent and 85 percent of its output, mostly to Europe.<sup>3</sup> Avesta expected demand to continue strong in 1988.

Avesta indicated that it is expanding production of welded stainless steel tubes, for which the demand in Europe is strong. The company indicated that its plants are working at almost 100 percent capacity.<sup>4</sup> Therefore, one of the company's subsidiaries, Avesta Sandvik Tube (AST) has purchased the equipment and is to takeover the production of welded stainless tubes from the West German producer Mannesmann Edelstahlrohr.<sup>5</sup> This marks the second acquisition of a stainless steel tube operation by AST, which purchased a UK-based company, TI Stainless Tubes, at the end of 1987.<sup>6</sup> The Mannesmann equipment is to be transferred to AST's works in the Netherlands (which will concentrate on thin-walled tubes) and Sweden.<sup>7</sup> AST has a total production capacity of about 41,000 mt.<sup>8</sup> Avesta has invested approximately \$20 million in

<sup>1</sup> "Better Profits from Swedish Special Steel," *Metal Bulletin*, Mar. 17, 1988.

<sup>2</sup> "Avesta Revamps UK Service Centre," *Metal Bulletin*, Mar. 28, 1988.

<sup>3</sup> *Ibid.*

<sup>4</sup> "AST Expands Stainless Tube Production," *Metal Bulletin*, May 23, 1988.

<sup>5</sup> "Avesta Predicts Profit Boost in 1988," *Metal Bulletin*, May 26, 1988.

<sup>6</sup> "AST Expands Stainless Steel Tube Production," *Metal Bulletin*, May 23, 1988.

<sup>7</sup> *Ibid.*

<sup>8</sup> *Ibid.*

stainless steel wire rod; the investment will result in about 18,000 mt additional capacity by mid-1990.<sup>9</sup>

Avesta's current output of cold-rolled sheet is about 200,000 mt per year; the company is planning to rebuild its hot-strip mill to supplant hire-out work and supply hot-rolled coils to its cold-roll mill. The Skr500 million (\$78 million) investment is designed to create cost efficiencies. The new mill is expected to be operational in 1991.<sup>10</sup>

Uddeholm Tooling was sold to a consortium, composed of Charterhouse Bank of the U.K. and the Swedish firms Trutor (an industrial company) and Merchant Fondkommission (a brokerage house), for Skr580 million (about \$98 million) and renamed Uddeholms AB. Profits in 1987 were Skr50 million (about \$8.45 million) on sales of Skr2,130 million (\$359.9 million).<sup>11</sup>

Swedish production of stainless steel rose approximately 5 percent between 1986 and 1987, to reach 456,000 metric tons.<sup>12</sup> No data is available on capacity or capacity utilization.

## Taiwan

The existing public sector (and currently sole) steelmaking company, Tang Eng Stainless Steel Plant, is actively expanding its facilities. Production in 1988 was about 153,000 tons of cold rolled products, which supplies roughly half the domestic market; the company was said to be operating at approximately 200 percent of rated capacity.<sup>13</sup> Imports, mostly from Japan, have traditionally filled needs in excess of domestic supply. Tang Eng has budgeted NTD 4 billion (US\$142 million) to expand its existing facility and build a hot-strip mill, an annealing and pickling line, and an electric arc furnace shop, with a projected completion date by 1995. These projects, if completed, would increase production of cold rolled sheets and plate to about 331,000 tons.<sup>14</sup> Five private sector firms are also planning to start steelmaking operations, using equipment imported from West Germany and Japan, with total investment estimated at NTD 26 billion (US\$ 925 million).<sup>15</sup>

There are self-imposed limits on Taiwanese exports (which are not subject to a formal VRA) of specialty steel to 22,500 tons on a monthly basis. There are no particular restrictions for

<sup>9</sup> "British Steel Sets Sights on Stainless Rod," *Metal Bulletin*, Feb. 2, 1989.

<sup>10</sup> "Avesta Plans Hot Strip Mill," *Metal Bulletin*, Feb. 13, 1989.

<sup>11</sup> "Uddeholm Finds a Buyer," *Metal Bulletin*, Mar. 17, 1988; also, "Consortium to Buy Uddeholm Tooling," *American Metal Market*, Mar. 16, 1988.

<sup>12</sup> Compiled from *World Stainless Steel Statistics*, published by International Nickel Inc., 1988 edition.

<sup>13</sup> "Strong Stainless Tang Eng," *Metal Bulletin*, Dec. 31, 1987.

<sup>14</sup> U.S. Department of State telegram, December 1988.

<sup>15</sup> *Ibid.*

individual products, and the U.S. industry has alleged that Taiwan has moved to higher-value goods, such as stainless pipe and tube, instead of lower-value stainless steel products.<sup>1</sup>

In a related trade development, the Government of Taiwan has announced that by 1991, the average 10 percent import duty currently imposed on stainless steel will be removed.<sup>2</sup>

### United Kingdom

The British stainless and alloy tool steel industry consists of British Stainless Corporation (BSC, a division of British Steel Plc.), and approximately six private companies, which are members of the British Independent Steel Producers Association (BISPA). BSC is the largest producer of stainless steel in the UK, whereas alloy tool steel is produced in smaller quantities by a number of other firms. BSC holds more than 50 percent of the cold-rolled stainless market in the UK, which is estimated at about 100,000 mt per year,<sup>3</sup> and about 55 percent of the market for stainless wire rod (totaling about 18,000 mt in 1988). BSC announced investments to be made in its Sheffield Alloy Steel Rods mill, which are designated to raise production closer to rated capacity (30,000 mt), and increase rolling speeds.<sup>4</sup>

United Engineering Steels Ltd. (UES) began operations in April 1986, following the merger of several specialty steelmakers. UES is jointly owned by British Stainless Corp and an engineering group, Guest, Keen, and Nettlefold (GKN), and has become the UK's second largest steel producer, reporting sharply improved profits during its first full year of operation of 1987, with deliveries of steel up 10 percent and forgings up 15 percent.<sup>5</sup> The market strength has continued through 1988, buoyed, in part, by closures of engineering steelmakers in Europe, which is the destination of 20 percent of UES' exports, and the strength of the UK automotive market.<sup>6</sup>

<sup>1</sup> "US Policy-Makers Plan Close Look at Taiwan," *American Metal Market*, August 9, 1988.

<sup>2</sup> "Strong Stainless Tang Eng," *Metal Bulletin*, Dec. 31, 1987.

<sup>3</sup> "BSC to Set Alloy Surcharges from July," *Metal Bulletin*, April 7, 1988.

<sup>4</sup> "British Steel Sets Sights on Stainless Rod," *Metal Bulletin*, Feb. 2, 1989. The two leading exporters to the UK market are Avesta (Sweden), and Ugine (France).

<sup>5</sup> "Buoyant Market Boosts UES Profits," *Metal Bulletin*, May 9, 1988.

<sup>6</sup> *Ibid.*

Consumption in the UK of tool and high-speed steels remained at about 15,400 mt during 1987 and 1988, with little potential for significant growth. Imports accounted for about 75 percent of consumption.<sup>7</sup>

Production of stainless steel rose 34 percent between 1986 and 1987 to reach 393,000 mt.<sup>8</sup> Neither capacity nor capacity utilization rates are available.

### West Germany

There were two major producers of stainless and alloy tool steel in West Germany in 1988: Krupp Stahl AG, and Thyssen Edelstahlwerke AG (TEW), a subsidiary of Thyssen AG; both produce a full range of specialty steel products, although tool steel production constitutes almost 50 percent of Thyssen's output. West Germany ranks third among stainless steel producers, and most of the consumption stems from the capital goods sector. In 1988, West German demand grew by 28 percent over levels in 1987. Production of stainless and alloy tool steel in West Germany has remained relatively stable, rising by about 5 percent to 1,538,000 tons in 1988. Capacities and capacity utilization rates are not available.

TEW's steel sales during the year ending Sept. 30, 1988, were up by 15 percent from 1987 levels, to DM 3.9 billion (about \$2 billion), with both the carbon and stainless steel businesses "well in profit".<sup>9</sup> Sales from its German plants totaled 930,000 mt (up 14 percent from 1987 levels), of which sales of flat-rolled stainless products totaled 285,000 mt (up 23 percent).<sup>10</sup> Capital investments of DM 124 million are to be made in the cold-rolling facilities at Krefeld, of which the largest single expenditure will be dedicated to improving the annealing and pickling line for hot- and cold-rolled strip, allowing higher capacity utilization.<sup>11</sup>

<sup>7</sup> "Sterling's Strength Hits UK Exports," *Metal Bulletin*, Dec. 22, 1988.

<sup>8</sup> Compiled from *World Stainless Steel Statistics*, published by International Nickel Inc., 1988 edition.

<sup>9</sup> "Better Steel Market Boosts Thyssen Profit," *Metal Bulletin*, Dec. 22, 1988.

<sup>10</sup> "TEW Faces Asian Competition," *Metal Bulletin*, Jan. 30, 1989.

<sup>11</sup> *Ibid.*

**APPENDIX A**  
**PRESIDENTIAL PROCLAMATION EXTENDING MEASURES AFFECTING**  
**IMPORTS OF CERTAIN STAINLESS STEEL AND ALLOY TOOL STEEL**

THE WHITE HOUSE

Office of the Press Secretary

For Immediate Release

July 16, 1987

EXTENSION OF TEMPORARY DUTY INCREASES AND QUANTITATIVE  
LIMITATIONS ON THE IMPORTATION INTO THE UNITED STATES OF  
CERTAIN STAINLESS STEEL AND ALLOY TOOL STEEL

- - - - -

BY THE PRESIDENT OF THE UNITED STATES OF AMERICA

A PROCLAMATION

1. On July 5, 1983, pursuant to section 202(b) (1) of the Trade Act of 1974 (the Act) (19 U.S.C. 2252(b) (1)) and after taking into account the considerations specified in section 202(c) of the Act (19 U.S.C. 2252(c)) and the report and recommendations of the United States International Trade Commission (the Commission), I determined to impose additional tariffs and quantitative restrictions on imports of certain bars; wire rods; and plates, sheets and strips, not cut, not pressed, and not stamped to nonrectangular shape; all the foregoing of stainless steel or certain alloy tool steel; and round wire of high-speed tool steel, provided for in specified items of the Tariff Schedules of the United States (TSUS) (19 U.S.C. 1202). By Proclamation 5074 of July 19, 1983, pursuant to sections 203(a) (1), 203(a) (3), and 203(e) (1) of the Act (19 U.S.C. 2253(a) (1), 2253(a) (3), and 2253(e) (1)), I provided import relief through the temporary imposition of increased tariffs and quantitative restrictions on certain stainless steel and alloy tool steel as set forth in the Annex to that Proclamation.

2. Further, in Proclamation 5074 I directed the United States Trade Representative (USTR) to take such actions and perform such functions for the United States as may be necessary to administer and implement such relief, to negotiate orderly marketing agreements pursuant to section 203 of the Act (19 U.S.C. 2253), to modify such relief pursuant to section 203, and to make any changes in the headnote or TSUS items created in the Annex to that Proclamation that may be necessary to implement the foregoing authority. I also directed the USTR to conduct an annual review of the necessity for and effectiveness of such relief and to recommend any appropriate action under section 203(h) (4) of the Act (19 U.S.C. 2253(h) (4)).

3. On September 18, 1984, I established a national policy for the steel industry and directed the USTR to coordinate and direct the implementation of that policy, including the negotiation of new arrangements with exporting countries and the reaffirmation of existing measures limiting steel exports into the United States. Supplemental authority to enforce the national policy for the steel industry was provided in Title VIII of the Trade and Tariff Act of 1984 (19 U.S.C. 2253 note).

more

(OVER)

4. Pursuant to the above authority, the USTR concluded agreements with the European Community and 18 other exporting nations and made such modifications to the import relief proclaimed in Proclamation 5074 as were necessary to implement these agreements.

5. I have now determined that the relief provided in Proclamation 5074, as subsequently modified, should be extended through September 30, 1989, as set forth in the Annex to this Proclamation. Finally, I have determined to continue the authority of the USTR under the national policy for the steel industry to take such actions as he determines necessary and appropriate to carry out that policy, including further actions with respect to articles subject to the relief set forth in the Annex to this Proclamation.

NOW, THEREFORE, I, RONALD REAGAN, President of the United States of America, acting under the authority vested in me by the Constitution and the statutes of the United States, including but not limited to sections 203 and 604 of the Act (19 U.S.C. 2253 and 2483), and in accordance with Article XIX of the General Agreement on Tariffs and Trade (GATT) (16 Stat. [pt. 5] A58; 8 UST [pt. 2] 1786), do proclaim that --

(1) Part I of Schedule XX of the GATT is modified to conform to the action taken in the Annex to this Proclamation.

(2) Subpart A, part 2 of the Appendix to the TSUS is modified as set forth in the Annex to this Proclamation.

(3) The authority delegated to the USTR by Proclamation 5074 is hereby continued throughout the duration of the relief set forth in the Annex to this Proclamation.

(4) The President's authority to prescribe regulations concerning any restriction proclaimed in Proclamation 5074 and continued by this Proclamation, or governing the entry or withdrawal from warehouse of articles covered by orderly marketing agreements negotiated thereunder or of like articles that are the product of countries not parties to any such agreement, previously delegated by Proclamation 5074 to the Secretary of the Treasury, shall continue to be exercised under the terms provided in such Proclamation for the duration of the relief provided herein.

(5) The Secretary of the Treasury shall take such actions as the USTR shall determine are necessary to implement any import relief under this Proclamation, or modifications thereof.

(6) Nothing in this Proclamation shall limit the authority delegated to the USTR pursuant to the national policy for the steel industry, including the authority to take such further action as he may determine to be necessary and appropriate to carry out that policy.

(7) This Proclamation shall be effective with respect to articles entered, or withdrawn from warehouse for consumption, on or after July 20, 1987, and before the close of September 30, 1989, unless the period of its effectiveness is earlier expressly modified or terminated.

IN WITNESS WHEREOF, I have hereunto set my hand this sixteenth day of July, in the year of our Lord nineteen hundred and eighty-seven, and of the Independence of the United States of America the two hundred and twelfth.

RONALD REAGAN

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ANNEX

Subpart A, part 2 of the Appendix to the Tariff Schedules for the United States (19 U.S.C. 1202) is modified --

(a) by deleting headnote 10(f) and inserting in lieu thereof new headnote 10(f) to read as follows:

"(f) United States International Trade Commission (USITC) surveys.--The USITC shall conduct annual mandatory surveys with respect to the products subject to import relief under each item involved to obtain from domestic producers data by calendar quarter on profits, orders, and inventories, and annual data on production, shipments, employment, capital expenditures, capacity, and research and development expenditures. The initial survey shall cover calendar year 1987, and the results shall be published by March 31, 1988. The final survey shall cover calendar year 1988, and the results shall be published by March 31, 1989. With each annual survey, the USITC shall also report the production, capacity, and capacity utilization, to the extent the information can be obtained, for each country which is a major supplier of imports, and any projected changes in production, capacity, and capacity utilization for those countries."

(b) by deleting headnote 10(g) and inserting in lieu thereof new headnote 10(g) to read as follows:

"(g) Products Subject to Certain Export Restraint Agreements.

(i) The duties provided for in items 926.00 and 926.05 shall not apply to products of Australia, Austria, Brazil, Czechoslovakia, the European Communities, German Democratic Republic, Hungary, Japan, Mexico, People's Republic of China, Poland, the Republic of Korea, Romania, South Africa, Venezuela, or Yugoslavia, exported to the United States on or after March 1, 1986.

(ii) The quantitative limitations provided for in items 926.10 through 926.21 shall not apply to products of Austria, Brazil, or the following Member States of the European Communities: Belgium, Denmark, Federal Republic of Germany, France, Greece, Ireland, Italy, Luxembourg, the Netherlands and the United Kingdom of Great Britain and Northern Ireland."



(c) by striking items 926.00 through 926.23, inclusive, and inserting in lieu thereof the following new items and superior headings thereto:

Item	Articles	Rates of Duty		
		1	2	3
		Effective with respect to articles entered during the period --		
		July 20, 1987 through July 19, 1988	July 20, 1988 through July 19, 1989	July 20, 1989 through September 30, 1989
926.00	Sheets and strip of stainless steel (except as provided for in headnote 10(g)(i) to this subpart, and except razor blade steel, cladding grade 434 stainless steel sheet, cold-rolled sheets of stainless steel, over 71 inches in width, stainless steel of the type described in headnote 10(a)(v) and flapper valve steel) provided for in items 607.76, 607.90, 608.29, 608.43, and 608.57, part 2B, schedule 6; all the foregoing whether or not entitled to duty-free treatment under item 832.00, part 3A, schedule 8.....	3% ad val.	2% ad val.	1% ad val. No Change
926.05	Plates of stainless steel (except as provided in headnote 10(g)(i) to this subpart, and except stainless steel of the type described in headnote 10(a)(v)) provided for in items 607.76 and 607.90, part 2B, schedule 6, all the foregoing whether or not entitled to duty-free treatment under item 832.00, part 3A, schedule 8.....	3% ad val.	2% ad val.	1% ad val. No Change

Item	Article	Quota Quantity (in short tons)
	Whenever the respective aggregate quantity of articles the product of a foreign country specified below for items 926.10 through 926.21, inclusive, has been entered in any restraint period (whether, for tariff purposes, in schedule 6 or in item 832.00 of schedule 8), no article in such item the product of such country may be entered during the remainder of such restraint period, except as provided in headnote 10:	
	Bars of stainless steel (except stainless steel of the type described in headnote 10(a)(v)), provided for in item 606.90, part 2B, schedule 6:	
926.10:	If entered during the period from July 20, 1987, through October 19, 1987, inclusive:	
	Argentina.....	55
	Canada.....	268
	Japan.....	3,442
	Korea.....	454
	Mexico.....	40
	Spain.....	1,069
	Sweden.....	330
	Other, except as provided in headnote 10(g)(ii) to this subpart.....	80
926.11:	If entered during the period from October 20, 1987, through July 19, 1988, inclusive, except as provided in headnote 10(g)(ii) to this subpart.....	17,717
926.12:	If entered during the period from July 20, 1988, through July 19, 1989, inclusive, except as provided in headnote 10(g)(ii) to this subpart.....	24,159
926.13:	If entered during the period from July 20, 1989, through September 30, 1989, inclusive, except as provided in headnote 10(g)(ii) to this subpart.....	4,977

Item	Article	Quota Quantity (in short tons)
	[Whenever...(con.):]	
	Wire rod of stainless steel (except stainless steel of the type described in headnote 10(e)(v)), provided for in items 607.26 and 607.43, part 2B, schedule 6:	
926.14:	If entered during the period from July 20, 1987, through October 19, 1987, inclusive:	
	Japan.....	1,542
	Spain.....	452
	Sweden.....	964
	Taiwan.....	50
	Other, except as provided in headnote 10(g)(ii) to this subpart.....	299
926.15:	If entered during the period from October 20, 1987, through July 19, 1988, inclusive, except as provided in headnote 10(g)(ii) to this subpart.....	10,213
926.16:	If entered during the period from July 20, 1988, through July 19, 1989, inclusive, except as provided in headnote 10(g)(ii) to this subpart.....	13,926
926.17:	If entered during the period from July 20, 1989, through September 30, 1989, inclusive, except as provided in headnote 10(g)(ii) to this subpart.....	2,869

Item	Article	Quota Quantity (in short tons)
	[Whenever...(con.):]	
	Bars, wire rods, plates, sheets, and strip, all the foregoing of alloy tool steel (except chipper knife steel, band saw steel, rotor steel for hysteresis motors, and tool steel of the type described in headnote 10(a) (viii)), provided for in items 606.95, 607.28, 607.34, 607.46, 607.54, 607.72, 607.88, 608.34, 608.49, and 608.64, and round wire of high speed tool steel, provided for in item 609.45, part 2B, schedule 6:	
926.18	If entered during the period from July 20, 1987, through October 19, 1987, inclusive:	
	Argentina.....	56
	Canada.....	386
	Japan.....	1,123
	Mexico.....	76
	Poland.....	69
	Spain.....	45
	Sweden.....	2,120
	Other, except as provided for in headnote 10(g)(ii) to this subpart.....	396
926.19:	If entered during the period from October 20, 1987, through July 19, 1988, inclusive, except as provided in headnote 10(g)(ii) to this subpart.....	13,182
926.20:	If entered during the period from July 20, 1988, through July 19, 1989, inclusive, except as provided in headnote 10(g)(ii) to this subpart.....	17,977
926.21:	If entered during the period from July 20, 1989, through September 30, 1989, inclusive, except as provided in headnote 10(g)(ii) to this subpart.....	3,703

**APPENDIX B**  
**SHORT SUPPLY**

A trade-related factor that affected the markets for stainless steel and alloy tool steel in the United States during 1988 was the occurrence of lengthened lead times and supply disruptions caused principally by increased demand worldwide. Downstream consumers of stainless steels (fabricators and rolling mills without melting facilities) experienced extended lead times, delayed or canceled deliveries, and allocated deliveries, or restricted order acceptance.<sup>1</sup> There were seven short-supply requests on specialty steel products filed in 1988 with the U.S. Department of Commerce, of which three on stainless steel wire rod and stainless steel hot-rolled bands are of note.

### Stainless steel wire rod

In January 1988, the American Wire Producers Association (AWPA) filed a short supply request on behalf of 10 members of the coalition<sup>2</sup> to purchase stainless steel wire rod in excess of the amounts allowed under the Voluntary Restraint Agreements with the EC and Brazil.<sup>3</sup> The request asked for licenses to be provided to import about 4,500 tons in the three grades, 304, 316, and 430. The coalition alleged that supply and demand were completely out of balance, that there existed extended lead times of six months or more, and that additional stainless steel wire rod was unavailable from foreign sources under the quota regimes. The coalition also alleged that the three domestic companies which produce wire rod to the grades and sizes needed had reduced shipments and begun allocating customers, as well as diverting production away from redraw rod to more profitable lines.<sup>4</sup>

The U.S. Department of Commerce approved in July 1988 the additional imports only of type 430 wire rod in the amount of 830 tons from Brazil and/or the EC. A finding was made that the domestic industry was capable of supplying an additional 2000 tons of types 302 and 304 wire rod.<sup>5</sup> The licenses were granted in September 1988 for the fourth quarter of 1988.<sup>6</sup>

The AWPA filed another short-supply request in October 1988 for 3,400 tons of type 430 wire rod for the first three quarters of 1989. The U.S. Department of Commerce, approved the import of 2,030 tons of type 430 stainless rod through the first half 1989.<sup>7</sup>

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<sup>1</sup> Compiled from questionnaires submitted to U.S. Department of Commerce under the short supply program.

<sup>2</sup> "Steel wire group seeks rod," *American Metal Market*, Jan. 25, 1988. The members of the coalition, which is said to represent nearly the entire nonintegrated sector of the stainless steel industry, are: ACS Industries, Woonsocket, RI; Branford Wire & Manufacturing Co., Mountain Home, NC; ECD, Inc., Hillside, NJ; Mapes Piano String Co., Elizabethton, TN; Maryland Specialty Wire Co., Cockeysville, MD; National-Standard Co., Niles, MI; Northampton Manufacturing Corp., Northampton, MA; Sandvik Steel Co., Scranton, PA; Techalloy Co., Inc., Rahns, PA; and Willing B Wire Corp., Willingboro, NJ.

<sup>3</sup> *Ibid*, *American Metal Market*, Jan. 25, 1988; and "US consumers may have to buy wire overseas," *American Metal Market*, Jan. 26, 1988; and short supply request filed with the U.S. Department of Commerce. The short supply request affects only VRA quotas with the EC and Brazil, since under the Orderly Marketing Arrangements, which restrict imports from other suppliers, there are no provisions for additional imports in excess of the quotas.

<sup>4</sup> *American Metal Market*, May 13, 1988. As of May, an additional 3,000 to 4,000 tons might have been imported until the end of July 1988, but the companies indicated they were unable to gain access to the tonnage, which had either been contracted previously to other U.S. companies, or was diverted to other products.

<sup>5</sup> Slater Steel Corp., Fort Wayne Specialty Alloys Division, indicated that it could lessen the effect of Carpenter Technology's reduced shipments, and begin shipping up to 300 tons per month of type 430 wire rod, in addition to what the independent wire drawers might purchase from AITech Specialty Steel and Baltimore Specialty Steel Corp (an Armco subsidiary). See, "Wire drawers to get rod from Slater unit," *American Metal Market*, Oct. 31, 1988.

<sup>6</sup> "Delayed rod short-supply licenses could cut wire drawers' tonnages," *American Metal Market*, Sept. 30, 1988. Also, "More short-supply requests for rod filed by wire drawers," *American Metal Market*, Sept. 20, 1988.

<sup>7</sup> "Commerce allows 7 wire drawers to import 430 rod, citing shortage," *American Metal Market*, Feb. 13, 1989. Also, "Wire drawers to get rod from Slater unit," *American Metal Market*, Oct. 31, 1988, where Slater Steel Corp, Fort Wayne Specialty Alloys Division, indicated it could begin shipping up to 300 tons per month of type 430, thereby adding to supplied quantities from A1 Tech and Armco's Baltimore Specialty Steel Corp. subsidiary, and lessening the effect of Car Tech's reduced shipments.

## Stainless steel bands

Mercury Stainless, Massillon, OH, the sole domestic producer of 60 inch-wide stainless steel sheet, filed a short supply request on March 31, 1988,<sup>1</sup> seeking to import about 6,000 tons per month of hot-bands of stainless steel from Spain, the EC, Brazil, and Japan of grades 302, 304, and 316. The company indicated that its domestic suppliers had put the company on allocation, and that deliveries from abroad would be faster than purchasing domestic material. Commerce approved the import of 5,600 tons for July/August 1988 delivery.<sup>2</sup>

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<sup>1</sup> "Hot band short-supply plea lodged by Mercury Stainless," *American Metal Market*, May 25, 1988.

<sup>2</sup> U.S. Department of Commerce, short supply file.

1. The first part of the document discusses the importance of maintaining accurate records of all transactions and activities. It emphasizes that this is crucial for ensuring transparency and accountability in the organization's operations.

2. The second part of the document outlines the various methods and tools used to collect and analyze data. It highlights the need for consistent and reliable data collection processes to support effective decision-making.

3. The third part of the document focuses on the role of technology in modern data management. It discusses how advanced software solutions can streamline data collection, storage, and analysis, leading to more efficient and accurate results.

4. The fourth part of the document addresses the challenges associated with data management, such as data quality, security, and privacy. It provides strategies to mitigate these risks and ensure that data is used responsibly and ethically.

5. The fifth part of the document concludes by summarizing the key findings and recommendations. It stresses the importance of ongoing monitoring and evaluation to ensure that data management practices remain effective and up-to-date.



**APPENDIX C**  
**STAINLESS STEEL INPUTS—NICKEL AND CHROME**

Nickel and chrome are two of the most important inputs used to produce stainless steels.<sup>1</sup> Increased prices and price volatility of nickel and chrome (as well as ferro-nickel and ferro-chrome), together with reduced supplies of these materials affected both production and prices of stainless steels in 1988.

## Nickel

The primary use of nickel is in stainless steel; consumption increases in stainless steel stimulate demand for melting grade nickel or ferro-nickel. Several events coincided during 1988 which significantly affected market conditions. First, after production and consumption increases in stainless steel of 10-15 percent in 1987, stainless steel production increased another 10 percent in 1988, leading to corresponding increases in nickel demand. On the supply side, during 1985-88, reflecting the effects of low nickel prices since 1982, there was a reduction in the number of nickel mines and smelters.<sup>2</sup> World nickel demand in 1987 was estimated to total 1.4 billion pounds; the Soviet Union supplied between 80 to 110 million pounds, western mines supplied from new production between 1.3 and 1.35 billion pounds, and stocks held by mines, merchants, or mills accounted for the balance. Falconbridge Nickel and International Nickel (or INCO), both Canadian companies, supply most of the nickel consumed in the United States; St. le Nickel (SLN) (France), Outokumpu (Finland), and the U.S.S.R. are the main suppliers of nickel and/or ferro-nickel in Europe.

The increase in demand for stainless steel coincided in 1988, with developing supply disruptions. There was first a drawdown of nickel stocks by producers, steel mills, and merchants. Second, there were various production interruptions worldwide, including: labor strikes at Western Mining (Australia); a shutdown of production at the facilities of Larco (Greece) by the Greek government due to insolvency; production disruptions due to furnace problems at Outokumpu (Finland) and due to civil commotion at PT Inco (Indonesia); reduced exports from the Soviet Union and China, because of increasing domestic consumption (China ceased exporting altogether); and a declaration of force majeure on deliveries from Falconbridge's plant in the Dominican Republic. Shipments, which had been made from the Dominican Republic on a sporadic basis on several occasions between December 1987 and April 1988, came to a complete halt over a dispute on export taxes, and resumed only several months later. Because U.S. producers of stainless steel to a great extent rely on supplies from Falconbridge's operations in the Dominican Republic, the force majeure affected the nickel supply situation more than did other factors. In combination, the developments led to dramatic price increases. In addition, prices were affected by fears of further supply disturbances due to the possibilities of strikes at INCO and Falconbridge, where labor contracts expired in May and June 1988, respectively.

Nickel and ferro-nickel is sold on the basis of both spot (cash) quotations and long term contract prices by the producers (INCO provides the only published producer price in Europe, the company's European Charge Nickel Price, ECNP). Nickel is also traded on the London Metal Exchange in U.S. dollars, on a spot basis and forward (payment and delivery in three months) basis. Most of the producers also sell based on LME-related quotations; thus, price fluctuations on the LME are a good barometer of the market, as is the difference between the spot and forward prices.<sup>3</sup>

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<sup>1</sup> Stainless steels are divided into austenitic and ferritic groups; austenitic stainless steels are composed of iron-chromium-nickel alloy, and ferritic stainless steels are composed of an iron-chromium alloy. Thus, the dividing line is the presence of nickel in the iron-chromium alloy. See, *The Making, Shaping and Treating of Steel*, Association of Iron and Steel Engineers, 10th Edition, 1985. The majority of stainless steels being produced are austenitic, and most increases in consumption of stainless steels are those of austenitic stainless steels; thus, increases in the price of nickel, have a greater relative effect on operations.

<sup>2</sup> "Inco Boosts Profits for Fiscal '87, Registers Turnaround for 4th Qtr.," *American Metal Market*, Feb. 4, 1988.

<sup>3</sup> Generally speaking, forward prices in a metal market are at a premium to cash transaction prices, reflecting the time value of money used to purchase spot metal and hold it to its forward delivery date; the inverse relationship, where the cash price is a premium to the forward price, called a backwardation, reflects a situation of metal shortage, or localized tightness. During periods of price volatility, the cash price tends to be affected before the forward price, and become more volatile (i.e., price fluctuations are higher). In a market where normal cash-forward price relationships exist, both tend to rise, with the forward premium either narrowing or widening, depending upon other factors. In a market that is already in backwardation, the backwardation tends to widen (i.e., the cash price becomes more of a premium to the forward price). Because more nickel is priced in Europe based on LME quotations, when a backwardation develops on the LME, Europe becomes a premium market, attracting metal.

Cash prices rose from about \$3 per pound at the beginning of December 1987 to \$8 per pound at the end of December in 1988, with significant fluctuation (price volatility) in the interim. The most significant portion of the increase in prices occurred between February and April of 1988, when prices doubled from about \$4 per pound to over \$8 per pound; thereafter cash prices declined to about \$6 per pound during August, before continuing upward during the rest of the third and fourth quarters of 1988. The backwardation widened at times of extreme volatility, at one time to almost \$150 per metric ton per day for short-term metal borrowing. Cash prices on the LME rose to above \$10 per pound in late March 1988, falling to \$7.25 one week later. INCO's ECNP rose from \$1.67 per pound in the third quarter of 1987 to \$3.21 per pound in the third quarter of 1988, at a time when the LME cash price was \$6.90 per pound, which illustrates some of the differences in pricing.<sup>1</sup>

In response to the tightened market more stainless steel scrap was utilized by domestic steel mills. This, combined with increased scrap exports, put upward pressure on scrap prices. Although scrap prices rose, at times prices did not rise as much as, or fluctuate as much as did the prices for nickel or ferro-nickel. There were, however, localized supply bottlenecks during 1988 as scrap merchants were, at times, unable to absorb the price risk of accumulating sufficient quantities of material. One way in which steelmakers dealt with the scrap and nickel situation was to purchase scrap back from their customers at a price that either reflected the cash market for such scrap or reflected the stainless steel product's contract price. Cost increases which occurred were passed through to steel consumers in the form of increased prices, or surcharges based on cash prices for nickel, and increased base prices (which incorporated the raw materials surcharges into the base price). Almost all stainless steel producers adopted raw materials surcharges. As lead times lengthened, several steel producers adopted "price in effect at time of delivery," a type of index based price.

Outside the United States, in response to the volatility of nickel prices, Japanese stainless steelmakers suspended quotes for 6 weeks, starting in late March 1988, an action which was later followed by the South Koreans. European producers reportedly increased base prices, and considered adopting raw materials surcharges, similar to the mills in the United States. Base prices increased, and similar to actions taken temporarily in the United States, rebates and discounts to service centers were lowered or disappeared. Also similar to pricing decisions made in the United States, sheet producers, which had experienced stronger demand and had larger margins, took longer to impose surcharges than did the producers of long products. It was easier for the long products mills to impose surcharges because the weaker demand during the previous years had not been conducive to market price increases. The situation was unusual in that producers were not in a position where they were quoting the prices of products at the time of taking orders.

Foreign mills were shielded to some extent by foreign exchange rate changes; nickel is an internationally traded commodity whose price is generally tied to the dollar (even though it is traded in pounds on the British LME) and the depreciation of the U.S. dollar during 1988 counteracted some of the rise in the price of nickel in terms of other currencies. Japanese stainless steel producers, for example, buy nickel in two ways. A large part of their requirements (up to 70 percent) is purchased under long-term contracts, with pricing based on market indices, foreign exchange rates, and premiums based on the calendar quarter prior to shipment; the remainder (about 30 percent) is purchased on the spot market. Most European stainless steel producers purchase nickel on a quarterly negotiated fixed-price contract.<sup>2</sup>

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<sup>1</sup> INCO's European Charge Nickel quotation rose each quarter by 10 percent, until it was replaced in June 1988 with a new ECNP that incorporated a ceiling price of \$4.50 per pound, a floor price of \$2.50 per pound, and a formula to adjust the contract price when market prices were between floor and ceiling; INCO's long-term European customers were offered the option of using the new ECNP, with minimum take-or-pay tonnages or buying melting grade nickel at the LME cash price plus a premium. Reportedly, most of the stainless steel producers in Europe have agreed to purchase nickel based on the new ECNP.

<sup>2</sup> "Foreign nickel buyers shielded," *American Metal Market*, Mar. 17, 1988.

## Chrome

The South African producer price for charge chrome was increased from 46.5 cents per pound during the fourth quarter of 1987 to 81.0-81.5 cents per pound for deliveries during the first quarter of 1989.<sup>1</sup> The market was said to be tight because of demand from stainless steel producers; only long term customers' orders were reportedly being filled, and there were no excess quantities available. Additionally, for the first time the U.S. market became the premium price market.<sup>2</sup>

Surcharges on chromium were introduced beginning in May 1988. The surcharge generally used a base price for chrome metal of 55 cents/pound and was adjusted upward by one cent per five cent increase in chromium.

### Effects on Consumers

The effect of increased costs on consumers of stainless steel is difficult to judge. Customer resistance to price increases apparently varied across industry lines. The aerospace industry, which is a major consumer of nickel based superalloys (some containing between 50 and 60 percent nickel), were wary of moves to abandon firm pricing in favor of price indexes, LME surcharges, or to renegotiate existing long-term fixed price contracts.<sup>3</sup> All major domestic airframe and engine manufacturers reportedly refused to place new orders with the steelmakers without firm quotes.<sup>4</sup> In addition, construction fabricators, who typically provide firm job quotes for lengthy periods of time, restricted bidding on new plant construction because of the price volatility. The result was that jobs were put on hold, or the fabricators would only quote on jobs where they could immediately purchase the material. No long-term fixed price contracts were being considered.<sup>5</sup> Tank trailer manufacturers reportedly reduced open-quote times by half, and raised prices of tank trailers by 8 to 15 percent to offset higher sheet and plate costs; at least one company withdrew its published prices, preferring to quote by individual order. Additionally the industry indicated that mills were allocating sheet at the time of order, and that spot shortages developed due to the mills' practice of blocking out tonnage for their long-term customers.<sup>6</sup>

Stainless steel producers have debated the effect of rising prices and price volatility over the longer term, especially since most of rising demand for stainless steel grades is for austenitic stainless steel (i.e., nickel-bearing). Stainless steel competes with fiberglass, plastics, and coated carbon steel, in non-critical applications. Price volatility for nickel and stainless steel would affect those areas most susceptible to switching, which are not the capital goods sector (accounting for about 60 percent of stainless steel demand), but the consumer goods market, where stainless steel costs are a high percentage of the cost of the final good. Two such products are stainless steel sinks and beer kegs. On the other hand, for much of the construction sector, the project work takes years to develop and the cost of stainless steel accounts for a relatively small amount of total project costs; the cost to substitute would be relatively high since it would involve re-engineering the project.

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<sup>1</sup> "S. African Makers Lift Charge Chrome," *American Metal Market*, December 7, 1988. There was a gradual rise in prices throughout the calendar year 1988. The producer price should be differentiated from price quotations from merchants; when the producer price was 60 cents/pound, there were merchant quotes at the \$1.15/pound level. The merchant premium is a reflection of scarcities.

<sup>2</sup> See, "Ferrochrome Becomes Harder to Get," *American Metal Market*, Aug. 29, 1988. Prices for ferrochrome in the United States were at a premium of several cents per pound to prices in Europe or Japan; U.S. mills were put on allocation at a time when overseas mills, the Japanese in particular, were able to build "significant inventories."

<sup>3</sup> "Aerospace Shuns Indexes," *American Metal Market*, May 19, 1988.

<sup>4</sup> Ibid.

<sup>5</sup> "Stainless Fabricators Cut Open-Quote Times," *American Metal Market*, April 5, 1988.

<sup>6</sup> "Trailer Makers in Squeeze," *American Metal Market*, April 22, 1988.

**APPENDIX D**  
**EUROPEAN MONOPOLIES INVESTIGATION**

The Commission of the European Economic Community started an investigation regarding suspected quota arrangements between European producers of cold-rolled stainless steel flat products which may fall within the scope of Article 65 of the Treaty of Paris (which established the European Coal and Steel Community). In response to a question raised on the floor of the European Parliament, a Commission spokesman stated,

“Overriding evidence of illegal quotas and price-fixing on the EEC’s stainless steel market has led the European Commission to issue a ‘statement of objections’ to eight of the Community’s major steel producers, demanding explanations which if found wanting could lead to considerable fines.”<sup>1</sup>

The companies involved were required to respond to charges; recent reports indicate that the companies did so in Feb. 1989). Fines, if any, could amount up to 10 percent of a company’s sales. The Commission’s action followed an inquiry begun in April 1988 involving Ugine (France), British Steel, Thyssen and Krupp (West Germany), ALZ (Belgium), Terni Speciali (Italy), and Acerinox (Spain). The investigation is reportedly focusing on charges of a flat-rolled stainless steel cartel that has fixed production quotas and prices within Europe since 1986. Two non-EC producers, Avesta of Sweden, and Outokumpu of Finland, were also asked to respond. The Commission has no jurisdiction over the latter two companies, and they are not technically subject to the investigation.

The inquiry was initiated under the competition guidelines of Article 65 of the ECSC treaty which bans cartels, and marks the first investigation into the so-called Sendzimir Club (or Z-mill Club),<sup>2</sup> and the first investigation into the steel industry in 13 years.<sup>3</sup> The investigation was initiated in 1988 following evidence that consumers in Spain and Britain were told that material was unavailable because of quotas on production, and that prices were high due to the restricted production.<sup>4</sup> Industry observers indicated that the existence of the Z-mill Club has been known for several years, that it met regularly with EC officials and informed them, both directly and through Eurofer, of statistics concerning stainless steel trading, supply and demand, as well as imports and exports, and that the European Commission had allowed direct regulation of steel production and consumption.<sup>5</sup>

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<sup>1</sup> “European Report,” published by the European Commission, October 11, 1988.

<sup>2</sup> The Sendzimir mill is a cold-rolling mill used by the industry to roll stainless steels.

<sup>3</sup> “EC Suspects Raids Will Unveil Stainless Cartel,” *Metal Bulletin*, May 9, 1988.

<sup>4</sup> “EEC Launches Probe of Stainless ‘Cartel,’” *American Metal Market*, May 5, 1988.

<sup>5</sup> “Commission Was ‘Aware of Z-mill Club,’” *Metal Bulletin*, May 12, 1988.