HIGH-CARBON FERROCHROMIUM

Report to the President on Investigation No. TA-201-35 Under Section 201 of the Trade Act of 1974

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UNITED STATES INTERNATIONAL TRADE COMMISSION

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USITC FINDS U.S. PRODUCERS SERIOUSLY INJURED BY INCREASED IMPORTS OF HIGH-CARBON FERROCHROMIUM AND RECOMMENDS HIGHER IMPORT DUTIES FOR 5 YEARS

The United States International Trade Commission today reported to the President its finding that high-carbon ferrochromium imports are a substantial cause of serious injury to domestic producers.

Vice Chairman Bill Alberger and Commissioners George M. Moore, Catherine Bedell, and Italo H. Ablondi determined in the affirmative. Chairman Joseph O. Parker and Commissioner Daniel Minchew did not participate in the determination.

To remedy the injury to the domestic industry, Commissioners Moore, Bedell, and Minchew recommended higher import duties for 5 years. The current U.S. import duty on high-carbon ferrochromium is 0.625 cent per pound, equivalent to 2.0 percent ad valorem. The Commission majority recommended the addition of a duty of 30 percent ad valorem to the existing rate for 2 years with gradual reductions in subsequent years. Commissioner Ablondi recommended a 3-year tariff-rate increase of 8 percent ad valorem. Vice Chairman Alberger recommended a 5-year graduated quota starting at 95,000 tons the first year and ending

more

with 109,975 tons. Chairman Parker did not participate in the remedy recommendation vote.

High-carbon ferrochromium, which is used in making stainless steel, is produced by five domestic firms with production centered in South Carolina, Tennessee, and Ohio. U.S. shipments in 1977 totaled 123,000 tons valued at $96 million, and the domestic industry employed approximately 480 production and related workers. Last year, imports amounted to 110,000 tons valued at $70 million from producers in South Africa, Rhodesia, Brazil, and Yugoslavia.

The Commission's investigation began June 21, 1978, following receipt of a letter from the Committee of Producers of High-Carbon Ferrochromium (Airco, Inc., Chromium Mining & Smelting Corp., and Interlake, Inc.) requesting a reinvestigation. In addition, the Committee on Ways and Means of the House of Representatives passed a resolution requesting that pursuant to the Trade Act of 1974, the Commission make an investigation to determine whether high-carbon ferrochromium is being imported into the United States in such increased quantities as to be a substantial cause of serious injury, or the threat thereof, to the domestic industry producing an article like or directly competitive with the imported article.

The Commission instituted the present investigation after determining that good cause exists, within the meaning of section 201(e) of the Trade Act of 1974, for a reinvestigation on high-carbon ferrochromium less than 1 year from the date the Commission reported to the President the results of its previous investigation (No. TA-201-28) on the same subject.

The Commission's report, High-Carbon Ferrochromium (USITC Publication 911), contains the views of the Commissioners and information developed in the investigation (No. TA-201-35). Copies may be obtained by calling (202) 523-5178 or from the Office of the Secretary, 701 E Street NW., Washington, D.C. 20436.

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Note.--The whole of the Commission's report to the President may not be made public since it contains certain information that 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. Such omissions are indicated by asterisks.

REPORT TO THE PRESIDENT

United States International Trade Commission,
September 5, 1978.

To the President:

In accordance with section 201(d)(1) of the Trade Act of 1974 (19 U.S.C. 2251(d)(1)), the United States International Trade Commission herein reports the results of an investigation relating to high-carbon ferrochromium.

The investigation (No. TA-201-35) was undertaken to determine whether ferrochromium, containing over 3 percent by weight of carbon, provided for in item 607.31 of the Tariff Schedules of the United States (TSUS), is being imported into the United States in such increased quantities as to be a substantial cause of serious injury, or the threat thereof, to the domestic industry producing an article like or directly competitive with the imported article.

The Commission received a letter from the Committee of Producers of High-Carbon Ferrochromium on June 9, 1978, requesting the investigation, and on June 13, 1978, it received a resolution of the Committee on Ways and Means of the House of Representatives that--

> (a) Pursuant to section 201(b)(1) of the Trade Act of 1974, the United States International Trade Commission shall promptly make an investigation to determine whether ferrochromium, containing over 3 percent by weight of carbon, is being imported into the United States in such increased quantities as to be a substantial cause of serious injury, or threat thereof, to the domestic industry producing an article like or directly competitive with the imported article. For purposes of this resolution, the term "ferrochromium, containing over 3 percent by weight of carbon" means articles classified under item 607.31 of the Tariff Schedules of the United States (19 U.S.C. 1202).
>
> (b) The Commission shall conclude its new investigation and report its determinations to the President by no later than 90 calendar days from the date of this resolution.

The Commission instituted the investigation on June 21, 1978, after determining that good cause exists, within the meaning of section 201(e) of the Trade Act of 1974 (19 U.S.C. 2251(e)), for a reinvestigation on high-carbon ferrochromium less than 1 year from the date the Commission reported to the President the results of its previous investigation (No. TA-201-28) on the same subject. Notice of this determination was published in the Federal Register of June 27, 1978 (43 F.R. 27907).

Notice of the institution of the investigation and of the public hearing to be held in connection therewith was issued on June 22, 1978, and published in the Federal Register of June 27, 1978 (43 F.R. 27907). The public hearing was held on August 8, 1978, in Washington, D.C. A transcript of the hearing and copies of briefs submitted by interested parties are attached. 1/

The information for this report was obtained from fieldwork and interviews by members of the Commission's staff, from other Federal agencies, from responses to the Commission's questionnaires, from information presented at the public hearing, from briefs submitted by interested parties, and from the Commission's files.

There were no imports of ferrochromium, containing over 3 percent by weight of carbon, from countries whose imports are presently subject to the rates of duty set forth in column 2 of the TSUS. The import relief recommended herein, therefore, is not addressed to imports from such countries. Certain recommended relief measures would involve the imposition of rates of duty on imports from countries whose imports are currently subject to rates of duty in column 1 which are higher than the rates

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1/ Attached to the original report sent to the President. These materials are available for inspection at the U.S. International Trade Commission, except for material submitted in confidence.

set forth in column 2. Should such recommended, or any other, rates of duty higher than the column 2 rates be proclaimed by the President, it would be necessary for him to conform column 2 by proclaiming rates therefor that are not less than those proclaimed for column 1. 1/

1/ See art. I, General Agreement on Tariffs and Trade (Basic Instruments and Selected Documents, vol. IV, March 1969), and General Headnote 4, Tariff Schedules of the United States (19 U.S.C. 1202).

DETERMINATION, FINDINGS, AND RECOMMENDATIONS OF THE COMMISSION

Determination

On the basis of its investigation, the Commission determines 1/ that ferrochromium, containing over 3 percent by weight of carbon, provided for in item 607.31 of the Tariff Schedules of the United States, is being imported into the United States in such increased quantities as to be a substantial cause of serious injury to the domestic industry producing an article like or directly competitive with the imported article.

Findings and Recommendations

Commissioners Moore, Bedell, and Minchew 2/ find and recommend that the imposition of rates of duty as follows, in addition to the existing column 1 rate of duty, is necessary to remedy the serious injury:

Ferrochromium, containing over 3 percent by weight of carbon, classifiable under item 607.31 of the TSUS:

1st year	2d year	3d year	4th year	5th year
30% ad val.	30% ad val.	25% ad val.	20% ad val.	20% ad val.

Commissioner Ablondi finds and recommends that the imposition of rates of duty as follows, in addition to the existing column 1 rate of duty, is necessary to remedy the serious injury:

Ferrochromium, containing over 3 percent by weight of carbon, classifiable under item 607.31 of the TSUS:

1st year	2d year	3d year
8% ad val.	8% ad val.	8% ad val.

1/ Vice Chairman Alberger and Commissioners Moore, Bedell, and Ablondi determine in the affirmative. Chairman Parker did not participate in this investigation and Commissioner Minchew did not participate in the vote on injury.

2/ Commissioner Minchew, noting that the Commission has made an affirmative determination, has made a recommendation of remedy.

Vice Chairman Alberger finds and recommends that the imposition of quotas 1/ as follows is necessary to remedy the serious injury (in short tons, chromium content):

	1978 2/	1979	1980	1981	1982
South Africa	35,150	35,150	36,908	38,754	40,692
All other countries	59,850	59,850	62,842	65,984	69,283
Total	95,000	95,000	99,750	104,738	109,975
Rhodesia 3/	27,550	27,550	28,928	30,375	31,894
All other countries 3/	32,300	32,300	33,914	35,609	37,389

Quotas are to be applied quarterly, both to prevent the flooding of the market and to allow Rhodesia's share to be reached in the "all other countries" category if the embargo is lifted. Quota levels are raised by 5 percent each year after 1979 in order to account for projected growth in U.S. high-carbon ferrochromium consumption, and yearend variances from quota levels are not to be carried forward into succeeding years (i.e., imports from South Africa in 1978 in excess of 35,150 tons would not be subtracted from that country's allocation for 1979).

1/ Quota levels were calculated on the basis of average annual imports during 1972-77. As South Africa and Rhodesia were the primary sources of imports during this period (accounting for well over 50 percent of total imports each year), only those countries are given specific allocations of the total quota. These allocations are based on average share of total imports accounted for by these countries during 1972-77.

2/ Quotas are to be retroactive to Jan. 1, 1978.

3/ The quota for Rhodesia is stand-by in nature, and is to be implemented in the event that the embargo currently in effect with regard to imports from that country is lifted. As long as the embargo remains in effect, Rhodesia's share of the quota is to be added to the "all other countries" category.

VIEWS OF COMMISSIONERS GEORGE M. MOORE, CATHERINE BEDELL, AND ITALO H. ABLONDI

The instant investigation was instituted by the United States International Trade Commission on June 21, 1978, to determine whether high-carbon ferrochromium, provided for in item 607.31 of the Tariff Schedules of the United States (TSUS), is being imported into the United States in such increased quantities as to be a substantial cause of serious injury, or the threat thereof, to the domestic industry producing an article like or directly competitive with the imported article. The Commission received requests for the investigation on June 9, 1978, from the Committee of Producers of High-Carbon Ferrochromium and on June 13, 1978, from the Committee on Ways and Means of the House of Representatives, 1/ and instituted the investigation after it determined that there was "good cause," within the meaning of section 201(e) of the Trade Act of 1974, for a reinvestigation on high-carbon ferrochromium less than 1 year from the date the Commission reported to the President the results of its previous investigation (No. TA-201-28) on the same subject.

In investigation No. TA-201-28, the Commission determined, 2/ on December 1, 1977, that high-carbon ferrochromium was being imported into the United States in such increased quantities as to be a substantial cause of the threat of serious injury to the domestic industry, and recommended that increased rates of duty be imposed on imported high-carbon ferrochromium to prevent the threatened injury. 3/ On January 27, 1978, the President determined that it would not be in the national economic interest to grant import relief to the domestic industry producing high-carbon ferrochromium.

1/ The resolution of the Committee on Ways and Means is set forth on p. A-4 of this report.

2/ Commissioners Moore, Bedell, and Ablondi determined in the affirmative, and Commissioner Minchew determined in the negative.

3/ USITC Publication 845, December 1977.

Section 201(b)(1) of the Trade Act requires that each of the following criteria be met if the Commission is to make an affirmative determination in this investigation and thus find a domestic industry eligible for import relief:

(1) Imports of the article concerned are entering the United States in increased quantities (either actual or relative to domestic production);

(2) The domestic industry producing an article like or directly competitive with the imported article is being seriously injured or threatened with serious injury; and

(3) Increased imports are a substantial cause of serious injury, or the threat thereof, to the domestic industry producing an article like or directly competitive with the imported article concerned.

Determination

On the basis of the evidence developed during this investigation, we have determined that high-carbon ferrochromium, provided for in item 607.31 of the TSUS, is being imported into the United States in such increased quantities as to be a substantial cause of serious injury to the domestic industry producing an article like or directly competitive with the imported article.

The domestic industry

It is our view that the relevant domestic industry consists of the facilities in the United States used in the production of high-carbon ferrochromium. 1/ In 1978, five domestic firms produced high-carbon ferrochromium in five plants located in the continental United States.

1/ High-carbon ferrochromium is a ferroalloy containing about 52 to 72 percent chromium and over 3 percent by weight of carbon. It is used primarily in the production of stainless steel.

Increased imports

Imports of high-carbon ferrochromium increased irregularly from 71,916 short tons, chromium content, in 1973 to 109,847 short tons, chromium content, in 1977. In relation to U.S. production, imports rose from 45 percent to 97 percent in the same time period. Imports in January-June 1977 totaled 67,854 short tons, chromium content, the equivalent of 117 percent of U.S. production, as compared with 84,508 short tons, chromium content, the equivalent of 177 percent of U.S. production in the corresponding period of 1978. The statutory requirement of increased imports is clearly satisfied.

Serious injury

It is now evident that the serious injury which we found to be threatening the domestic industry in December 1977 has materialized. An examination of each of the criteria of injury set forth in section 201(b)(2)(A) of the Trade Act of 1974 shows that the economic health of the domestic industry has deteriorated in the past year and that the industry is being seriously injured.

Idling of productive facilities.--U.S. producers operated their high-carbon ferrochromium production facilities at only 50 percent of capacity in January-June 1978, compared with 57 percent in 1977. The operating level in January-June 1978 was the lowest experienced since 1975, when the production of stainless steel, the principal use of ferrochromium, had dropped sharply.

Inability to operate at a reasonable level of profit.--Data obtained by the Commission clearly show that there has been a downward trend in the profit of U.S. producers on their high-carbon ferrochromium operations. The aggregate net operating profit for the domestic industry dropped from $21.2 million in 1974 to $7.9 million in 1976 and to $3.5 million in 1977. A net operating loss of $5.0

million occurred in January-June 1978. Four of the five U.S. producers operated at a loss in 1977, and all five experienced operating losses in January-June 1978.

Unemployment within the industry.--The average number of production and related workers engaged in the production of high-carbon ferrochromium declined irregularly from 682 in 1973 to 477 in 1977 and 396 in January-June 1978. In addition, man-hours worked by production and related workers fell from 1.4 million hours in 1973 to 1.0 million hours in 1977. The number of employees and the man-hours worked during 1973-77 were at their lowest levels in 1977, except for 1975, when the full impact of the recession was felt by this industry. Workers in all five plants in the United States in which high-carbon ferrochromium is produced have been certified as being eligible to apply for adjustment assistance under the provisions of chapter 2 of title II of the Trade Act of 1974. That chapter requires, in part, that increased imports of articles like or directly competitive with those produced by the workers' firm must have contributed importantly to unemployment or the threat of unemployment in that firm.

Decline in sales.--Net sales of U.S. producers of high-carbon ferrochromium declined from $103.2 million in 1974 to $89.2 million in 1977; U.S. producers' shipments declined from 154,415 short tons, chromium content, to 122,994 short tons during the same period. Sales of $33.2 million (52,416 short tons) in January-June 1978 were substantially less than the sales of $48.1 million (67,900 short tons) reported for the corresponding period of 1977.

Downward trend in production.--Figure 4 on page A-21 of the Commission's report shows a sharp decline in the 5-year trend in domestic production of high-carbon ferrochromium. U.S. production dropped from 158,550 short tons, chromium content, in 1973 to 112,803 short tons in 1977. This decrease occurred despite the fact that

considerably more high-carbon ferrochromium was used per ton of stainless steel produced in 1977 than in 1973 because of the continuing conversion of U.S. stainless steel production to the AOD process. 1/

Substantial cause

U.S. imports of high-carbon ferrochromium rose at an annual rate of more than 11 percent during 1973-77 and increased as a share of the U.S. market from 46 percent to 58 percent in the same period. The ability of foreign producers to sell high-carbon ferrochromium at prices consistently lower than those of domestic producers has not only enabled the foreign suppliers to increase their share of the domestic market, but has also been a major factor in causing the substantial decline in U.S. producers' prices between 1975 and 1978. During this period, domestic producers' costs of producing high-carbon ferrochromium increased in such important categories as chromium ore and electric power, while prices for domestically produced high-carbon ferrochromium containing over 65 percent chromium fell by about one-third between January 1975 and June 1978. This erosion of U.S. producers' prices has contributed significantly to the declining profit in the U.S. industry. It is clear that imports are the most important cause of the serious injury being suffered by the domestic high-carbon ferrochromium industry.

Conclusion

In view of the foregoing, we have determined that the domestic industry producing high-carbon ferrochromium has been seriously injured, within the meaning of section 201 of the Trade Act of 1974, by increased imports of the material under investigation.

1/ The Argon-Oxygen-Decarburization (AOD) process allows the stainless steel producer to substitute, almost wholly, lower cost high-carbon ferrochromium for higher cost low-carbon ferrochromium to obtain the chromium input.

ADDITIONAL VIEWS OF COMMISSIONERS GEORGE M. MOORE, CATHERINE BEDELL, AND DANIEL MINCHEW 1/ ON REMEDY

It is our view that the same relief we recommended in December 1977, to prevent the serious injury that was threatening the domestic high-carbon ferrochromium industry is now required to remedy the serious injury that the Commission has found the industry to be suffering at this time. Our finding with respect to the specific relief needed to remedy the serious injury is set forth in the findings and recommendations appearing on page 4 of this report.

In order to make the imported and domestically produced high-carbon ferrochromium prices competitive and to permit U.S. producers to cover their production costs and to earn a reasonable profit, it is necessary to add a duty of 30 percent ad valorem to the present rate of duty on high-carbon ferrochromium for a period of 2 years. Thereafter, we recommend that this additional duty be reduced in stages so that over the 5-year period of relief that we have recommended the domestic industry will have an opportunity to adjust to whatever competitive conditions will exist after the termination of import relief.

1/ Commissioner Minchew is of the opinion that the Trade Act requires that in all cases of affirmative findings there shall be two separate, distinct votes, and that each Commissioner has a duty to participate in the recommendation process regardless of the Commissioner's individual vote on the question of serious injury due to increased imports. Accordingly, Commissioner Minchew, although not participating in the injury determination in this case, is participating in this recommendation because of the Commission's finding of serious injury resulting from increased imports.

ADDITIONAL VIEWS OF COMMISSIONER ITALO H. ABLONDI ON REMEDY

It is my view that relief in the form of increased rates of duty should be granted to the domestic high-carbon ferrochromium industry, which the Commission has found to be seriously injured. Specifically, I recommend that an additional duty of 8 percent ad valorem be applied to high-carbon ferrochromium, provided for in item 607.31 of the Tariff Schedules of the United States, for a period of 3 years. This additional duty will assist in eliminating the price difference between imported and domestically produced high-carbon ferrochromium. Furthermore, this duty increase will approximately equalize the rates of duty applicable to high-carbon ferrochromium imposed by the major import markets for this commodity, i.e., the European Economic Community, Japan, and the United States. Elimination of the incentive to export to the United States because of the present disparity in the rates of duty among comsuming countries will enable U.S. producers to compete with imports and obtain a larger share of the U.S. market without undue burden upon consumers. This moderate increase in duty will not exclude imports from the U.S. market or create windfall profit for the dominant U.S. producer.

VIEWS OF VICE CHAIRMAN BILL ALBERGER

On the basis of information developed in this investigation, I determine that high-carbon ferrochromium of the type described in the notice is being imported into the United States in such increased quantities as to be a substantial cause of serious injury to the domestic industry producing the like or directly competitive products.

The Trade Act of 1974 (Section 201(b)(1)) requires that each of the following conditions be met before an affirmative determination can be made:

(1) There are increased imports (either actual or relative to domestic production) of an article into the United States;

(2) A domestic industry producing an article like or directly competitive with the imported article is seriously injured, or threatened with serious injury; and

(3) Such increased imports of an article are a substantial cause of serious injury, or the threat thereof, to the domestic industry producing an article like or directly competitive with the imported article.

The domestic industry

In this investigation, I have determined that the relevant domestic industry consists of the facilities in the United States used in the production of high-carbon ferrochromium. High-carbon ferrochromium is a ferroalloy containing about 52 to 72 percent

chromium and over 3 percent by weight of carbon. It is used primarily in the production of stainless steel. In 1978, five domestic firms produced high-carbon ferrochromium in five plants located in the continental United States.

Increased imports

From 1973 through 1977, imports of high-carbon ferrochromium increased irregularly. In 1973, there were imports of 71,916 short tons with an increase to 109,847 short tons by 1977. The ratio of imports to domestic production rose from 45 percent to 97 percent during the same time frame. For the period from January through June 1978, imports hit 84,508 short tons, or 177 percent of U.S. production. This compares with imports of 67,854 short tons and 117 percent of U.S. production for the same period in 1977. Clearly, imports have increased within the meaning of the statute.

Serious injury

The Trade Act does not define the term "serious injury" but does provide guidelines in the form of economic factors. Under section 201(b)(2) the Commission is to take into account "all economic factors which it considers relevant, including (but not limited to)--". . . the significant idling of productive facilities in the industry, the inability of a significant number of firms to operate at a reasonable level of profit, and significant unemployment or underemployment within the industry..."

I have also considered and analyzed other economic developments in the industry to determine whether serious injury exists. These include: (1) Production and shipments; (2) inventories; (3) sales; and (4) prices.

Idle facilities--U.S. producers of high-carbon ferrochromium operated at 50 percent of capacity during the first six months of 1978. This is the lowest rate since 1975 when the production of stainless steel, the principal use of ferrochromium, had dropped sharply. This year's drop, however, is not attributable to the same cause, as stainless steel production is at near record levels. The 50 percent rate of capacity utilization is a decline of 17 percent for the corresponding period of 1977 and a 12 percent dip from year long 1977 rates.

Profits--From 1974 through 1977, the aggregate net operating profits of the domestic industry dropped from $21.2 million to $3.5 million. January-June 1978 statistics show a net operating loss of $5.0 million with all five of the U.S. producers experiencing losses. During 1977, four of the five companies experienced losses.

Employment--The average number of production and related workers engaged in the production of high-carbon ferrochromium declined irregularly from 682 in 1973 to 477 in 1977 and 396 in January-June 1978. In addition, man-hours worked by production and related workers fell from 1.4 million hours in 1973 to 1.0 million hours

in 1977. The number of employees and man-hours worked during the 1973-77 period were at their lowest level in 1977, except for 1975, when the full impact of the recession was felt by this industry. Workers in all five plants in the United States in which high-carbon ferrochromium is produced have been certified as being eligible to apply for adjustment assistance under the provisions of chapter 2 of title II of the Trade Act of 1974. That chapter requires, in part, that increased imports of articles like or directly competitive with those produced by the workers' firm must have contributed importantly to unemployment or the threat of unemployment in that firm.

Production and shipments--Production declined irregularly from 158,550 short tons in 1973 to 112,803 tons in 1977 and production for the first half of 1978 is the lowest January-June level for the 1973-78 period. This decrease has occured in spite of the fact that far more high-carbon ferrochromium is being used per ton of stainless steel produced now than was in 1973. This is due to the continuing conversion of U.S. stainless steel production to the AOD process. 1/ Shipments, like production, dropped from 1973 through 1977. January-June 1978 shipments are nearly 23 percent below the comparable period in 1977. At this rate, shipments by domestic producers for the full year 1978 would be at their lowest annual rate since 1975.

1/ The Argon-Oxygen Decarbonization (AOD) process allows the stainless steel producer to substitute, almost wholly, lower cost high-carbon ferrochromium for higher cost low-carbon ferrochromium to obtain the chromium input.

Inventories--Total inventories of high-carbon ferrochromium increased irregularly in the 1973-77 period. From January, 1975 to January, 1976 they more than tripled. After climbing higher toward the end of 1976, they dipped during 1977, but as of March 31, 1978, had reached their highest quarterly level at 154,258 short tons.

Sales--U.S. producers experienced a decline in net sales of $14 million from 1974 through 1977. This downward trend continued through the January-June 1978 period as sales declined nearly $15 million, or about 31 percent, from the corresponding period of 1977.

Prices--With the exception of 1975, when both domestic and import prices peaked, imports generally undersold U.S.-produced high-carbon ferrochromium. From the high in 1975 through June 1978, U.S. producers' prices dropped by almost a third. This price dip occurred as costs of production for domestic producers were climbing, particularly in the important areas of chromium ore and electric power.

Summary

Having considered the poor rate of capacity utilization, the bleak profit picture, the declining employment, the downward trends in production, shipments and sales, and the drop in domestic prices in the face of rising production costs, I conclude that the domestic high-carbon ferrochromium producers are suffering "serious injury" within the meaning of the Trade Act.

Substantial Cause

Section 201(b)(4) of the Trade Act defines the term "substantial cause" to mean "a cause which is important and not less than any other cause." Thus, increased imports must be both an "important cause of injury or the threat thereof" and "not less than any other cause." Section 201(b)(2) further directs that in determining "substantial cause" the Commission "shall take into account all economic factors it considers relevant, including (but not limited to) . . . an increase in imports (either actual or relative to domestic production) and a decline in the proportion of the domestic market supplied by domestic producers."

From 1973 through 1977, imports of high-carbon ferrochromium rose at an annual rate of 11 percent. During the same time frame, imports increased as a share of the U.S. market from 46 to 58 percent. For the January-June 1978 period, imports held a 71 percent share of the domestic market.

The price advantage the importers have been able to maintain over domestic producers has been a major factor in enabling them to increase market share. At the same time, it has also been a key element in the decline of U.S. prices; a decline that took place in spite of rising production costs. This decline, in turn, has contributed substantially to the downward trend in profits for U.S. producers.

In addition to "increased imports" as a "substantial cause," I have looked at domestic stainless steel production as a possible "substantial cause." U.S. demand for high-carbon ferrochromium is directly related to the domestic production of stainless steel. Therefore, the health of the stainless steel industry is of vital importance to the domestic producers of high-carbon ferrochromium. Since 1975, domestic stainless steel production has increased rapidly and is nearing record levels. Consequently, it cannot be considered a cause of the injury in this investigation.

Therefore, in view of the healthy state of the primary end user of high-carbon ferrochromium and the declining state of health of the domestic high-carbon ferrochromium industry in the face of increased imports, it is my judgment that imports are a "substantial cause" of "serious injury."

ADDITIONAL VIEWS OF VICE CHAIRMAN BILL ALBERGER ON REMEDY

Under Section 201(d)(1), if the Commission finds the serious injury or threat thereof, it shall

> "(A) find the amount of the increase in, or imposition of, any duty or import restriction on such article which is necessary to prevent or remedy such injury, or (B) if it determines that adjustment assistance under chapters 2, 3, and 4 can effectively remedy such injury, recommend the provision of such assistance."

The Commission having found in the affirmative under Section 201(b), I have considered the alternative remedies available. Adjustment assistance will not offer sufficient relief to this industry. Some workers have already qualified for benefits under Chapter 2, and one firm has been certified to receive assistance to firms. The limitations in the relief provisions for firms (loans to individual firms cannot exceed $1 million and loan guarantees are limited to $3 million per firm) are much too low to provide sufficient assistance to remedy the serious injury I have found.

Tariffs or tariff-rate quotas were also considered, but my concern is that a significant portion of such tariffs might be passed through, and based on pricing practices of the South African producers, they would totally dominate the import market. Since imports from South Africa were the principal concern of domestic producers, it seems incongruous to recommend a remedy that would primarily penalize exporters in the countries whose imports didn't really cause the injury.

I then looked at quantitative restrictions, and considered the recommendations of various parties in the investigation. It is my judgment that

the Commission should not recommend orderly marketing agreements. Matters directly involving the international obligations of the United States should be left to Executive Branch agencies. Use of Section 203(k)(1) of the Trade Act, which permits the taking of steps against certain selected countries in spite of MFN agreements, was also suggested as a course of remedy action. While this would allow for quotas against only imports from South Africa and Rhodesia and permit unrestricted trade from other nations, in contradiction of traditional MFN principles, this is a judgment for the President rather than the USITC to consider.

It is my view that quotas should be applied against all imports of high-carbon ferrochromium over a 5-year period beginning January 1, 1978. I have chosen as the most representative period for the purposes of computing the quota, the six years 1972-77. South Africa and Rhodesia were the primary sources of imports during this period, and thus are the only countries to receive specific allocations of the total quota. This period allows for the averaging of years of both high and low levels of imports. My specific recommendation is as follows (in short tons, chromium content):

	1978	1979	1980	1981	1982
South Africa ----------:	35,150	35,150	36,908	38,754	40,692
All other countries ---:	59,850	59,850	62,842	65,984	69,283
Total ----------:	95,000	95,000	99,750	104,738	109,975
Rhodesia* ----------:	27,550	27,550	28,928	30,375	31,894
All other countries* --:	32,300	32,300	33,914	35,609	37,389

* The quota for Rhodesia is stand-by in nature, and is to be implemented in the event that the embargo currently in effect with regard to imports from that country is lifted. As long as the embargo remains in effect, Rhodesia's share of the quota is to be added to the "all other countries" category.

Quotas are to be applied quarterly, both to prevent the flooding of the market and to allow Rhodesia's share to be reached in the "all other countries" category if the embargo is lifted. Quota levels are raised by five percent each year after 1979 in order to account for projected growth in consumption, and variances from quota levels at years' end are not to be carried forward into succeeding years (i.e., imports from South Africa in 1978 in excess of 35,150 tons would not be subtracted from that country's allocation for 1979).

It could be alleged that my failure to allocate a portion of Rhodesia's stand-by quota to South Africa constitutes questionable treatment under Article 13 of the General Agreement on Tariffs and Trade (GATT). It is my view that my proposals do not discriminate in any way against any countries. Country quotas are based on the six-year averages over the period 1972-77, and no country has a quota any less than its share in that period, nor does any country have a specific quota representing a greater share than any other country.

I have concluded that the above outlined quota of 95,000 short tons chromium content will provide the domestic industry producing high carbon ferrochromium the opportunity to meet higher costs of production, price competitively with imports, restore its profitability, and adjust in order to compete effectively without protection at the end of the specific period of relief.

SUMMARY

Investigation No. TA-201-35 was instituted on June 21, 1978, following a determination by the Commission that good cause existed to waive the requirement that 1 year elapse since the Commission reported to the President the results of a previous investigation covering the same subject matter. 1/ The Commission received requests for the new investigation from the Committee of Producers of High-Carbon Ferrochromium on June 9, 1978, and from the Committee on Ways and Means of the House of Representatives on June 13, 1978. A public hearing was held in connection with the investigation in Washington, D.C. on August 8, 1978.

High-carbon ferrochromium is used primarily as a source of chromium in the production of stainless steel (chromium gives stainless steel its corrosion-resistant properties). It is produced by five domestic producers, imported by about 35 firms, 2/ and purchased by about 25 consumers. A brief profile of the U.S. industry is shown in the following table.

High-carbon ferrochromium: U.S. producers' shipments, capacity utilization, average number of production and related workers, and net operating profit or (loss), 1973-77, January-June 1977, and January-June 1978

Period	Shipments		Capacity utilization	Production and related workers	Net operating profit or (loss)
	Quantity	Value			
	1,000 tons, chromium content	Million dollars	Percent		Million dollars
1973	171	73	82	682	5
1974	154	92	88	674	21
1975	78	78	41	460	14
1976	106	83	55	502	8
1977	123	96	57	477	4
January-June--					
1977	68	52	60	470	3
1978	52	40	50	396	(5)

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission and from official statistics of the U.S. Bureau of Mines.

1/ On Dec. 1, 1977, the Commission reported to the President its determination in investigation No. TA-201-28 that increased imports of high-carbon ferrochromium were a substantial cause of the threat of serious injury to the domestic high-carbon ferrochromium industry.

2/ About 10 of these firms are steel producers which use the high-carbon ferrochromium in their own facilities. The other firms sell the high-carbon ferrochromium in the U.S. market.

Imports of high-carbon ferrochromium more than doubled in 1975, fell sharply in 1976, rose slightly in 1977, and then surged again in January-June 1978.

High-carbon ferrochromium: U.S. imports for consumption and production, 1973-77, January-June 1977, and January-June 1978

Period	Imports	Production	Ratio of imports to production
	1,000 tons, chromium content	1,000 tons, chromium content	Percent
1973	72	159	45
1974	71	145	49
1975	158	78	202
1976	107	105	102
1977	110	113	97
January-June--			
1977	68	58	117
1978	85	48	177

Source: Compiled from official statistics of the U.S. Department of Commerce and the U.S. Bureau of Mines.

Following the 1977 embargo against imports from Rhodesia, the Republic of South Africa has become by far the largest source of imported high-carbon ferrochromium. In January-June 1978, high-carbon ferrochromium was also imported from Yugoslavia and Sweden, but none came from Brazil, which accounted for 5.5 percent of all imports in 1977. One of the domestic producers (Union Carbide Corp.) operates a new high-carbon ferrochromium plant in South Africa that exports all its production. The advantage of locating productive facilities near the source of the raw material (chromium ore) is that more than half the cost of importing the ore is saved (a rough guide used to determine shipping requirements is that 2-1/2 tons of chromium ore are needed to produce 1 ton of high-carbon ferrochromium). High-carbon ferrochromium prices have varied considerably since 1973, as shown in the table on the following page.

High-carbon ferrochromium: Weighted average prices for the greatest volume of the imported and U.S.-produced products sold, 1973-77, January-June 1977, and January-June 1978

(Cents per pound)

Period	Price of high-carbon ferrochromium, over 65 percent chromium	
	Imported	U.S.-produced
1973	20	21
1974	46	33
1975	69	55
1976	44	43
1977	38	40
January-June--		
1977	38	42
1978	37	37

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

INFORMATION OBTAINED IN THE INVESTIGATION

Introduction

The Commission instituted the present investigation on June 21, 1978, after determining that good cause exists, within the meaning of section 201(e) of the Trade Act of 1974 (19 U.S.C. 2251), for a reinvestigation of high-carbon ferrochromium in less than 1 year from the date the Commission reported to the President the results of its previous investigation (No. TA-201-28) of the same subject matter. Notice of this determination was published in the Federal Register of June, 27, 1978 (43 F.R. 27907). A copy of the notice, which contains the economic data upon which the Commission made its determination, is presented in appendix A.

The investigation was instituted following receipt on June 9, 1978, of a letter from the Committee of Producers of High-Carbon Ferrochromium (CPHCF) requesting such a reinvestigation and receipt, on June 13, 1978, of a resolution of the Committee on Ways and Means of the House of Representatives that--

> (a) Pursuant to section 201(b)(1) of the Trade Act of 1974, the United States International Trade Commission shall promptly make an investigation to determine whether ferrochromium, containing over 3 percent by weight of carbon, is being imported into the United States in such increased quantities as to be a substantial cause of serious injury, or threat thereof, to the domestic industry producing an article like or directly competitive with the imported article. For purposes of this resolution, the term "ferrochromium, containing over 3 percent by weight of carbon" means articles classified under item 607.31 of the Tariff Schedules of the United States (19 U.S.C. 1202).
>
> (b) The Commission shall conclude its new investigation and report its determinations to the President by no later than 90 calendar days from the date of this resolution.

A copy of the letter from the CPHCF is presented in appendix B, and a copy of the resolution with its covering letter from the Chairman of the Ways and Means Committee is presented in appendix C.

Notice of the institution of the investigation and of the public hearing to be held in connection therewith was published in the Federal Register of June 27, 1978 (43 F.R. 27907). A copy of the notice is presented in appendix D. Copies of all notices were posted at the Commission's offices in Washington, D.C., and New York City. The public hearing was held in the Commission's hearing room in Washington, D.C., on August 8, 1978.

In investigation No. TA-201-28, the Commission determined by a vote of 3 to 1 1/ on December 1, 1977, that ferrochromium, containing over 3 percent by weight of carbon, was being imported into the United States in such increased quantities as to be a substantial cause of the threat of serious injury to the

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1/ Chairman Minchew dissenting and Vice Chairman Parker and Commissioner Alberger not participating.

domestic industry producing an article like or directly competitive with the imported article. The Commission found that to prevent the threatened serious injury, increased rates of duty should be imposed on imported high-carbon ferrochromium. A copy of the Commission's determinations, findings, and recommendations is presented in appendix E. On January 27, 1978, the President determined that the relief recommended by the Commission was not in the national economic interest and so notified the Congress. On February 2, 1978, a House Concurrent Resolution was introduced by Mr. Maguire of New Jersey to override the President's decision. A hearing was held March 22, 1978, in Washington, D.C. On April 26, 1978, the Subcommittee on Trade of the Committee on Ways and Means passed over this resolution and approved a second resolution introduced by Mr. Holland of South Carolina to request the Commission to conduct a new investigation of high-carbon ferrochromium pursuant to section 201 of the Trade Act. The full Committee on Ways and Means approved the resolution by voice vote on June 7, 1978.

In addition to investigation No. TA-201-28, the Commission has instituted two previous investigations covering ferrochromium products. On May 21, 1973, following receipt of a petition filed by the Ferroalloys Association, the U.S. Tariff Commission (the former name of the U.S. International Trade Commission) instituted an investigation (No. TEA-I-28) under section 301(b)(1) of the Trade Expansion Act of 1962, to determine whether ferrochromium, ferromanganese, ferrosilicon, ferrosilicon chromium, ferrosilicon manganese, chromium metal, manganese metal, and silicon metal were, as a result in major part of concessions granted under trade agreements, being imported into the United States in such increased quantities as to cause, or threaten to cause, serious injury to the domestic industry or industries producing like or directly competitive products. On June 28, 1973, investigation No. TEA-I-28 was discontinued by the Commission at the request of the petitioner without a determination on its merits and without prejudice.

On January 21, 1977, following receipt of a petition filed by the Committee of Producers of Low Carbon Ferrochrome, the Commission instituted an investigation (No. TA-201-20) under section 201(b)(1) of the Trade Act of 1974 that resulted in a Commission determination 1/ on July 11, 1977, that low-carbon ferrochromium was not being imported into the United States in such increased quantities as to be a substantial cause of serious injury, or the threat thereof, to the domestic industry producing an article like or directly competitive with the imported article.

The information in this report was obtained from fieldwork; questionnaires sent to domestic producers, importers, and consumers; the Commission's files, briefs submitted by interested parties; and other Government agencies.

1/ Commissioner Moore dissenting and Vice Chairman Parker not participating.

Description and Uses

High-carbon ferrochromium

High-carbon ferrochromium is one of several ferroalloys that are used as sources of chromium. 1/ It is defined in the TSUS as ferrochromium 2/ containing over 3 percent, by weight, of carbon. Commercial grades of high-carbon ferrochromium contain 52 to 72 percent chromium, 4.0 to 9.5 percent carbon, and 3.0 to 10.0 percent silicon, with the remainder largely iron. 3/

Methods of production.--High-carbon ferrochromium is produced in submerged-arc electric furnaces (fig. 1), which are rated in terms of the power used in their operation. A small furnace would be rated at about 10 megawatts and could produce about 60 tons, gross weight, of high-carbon ferrochromium a day; a large furnace would be rated at about 60 megawatts and have a daily production capacity of about 360 tons. Heat is generated by passing an electric current through carbon electrodes that extend downward into the "charge mix" (thus the name "submerged-arc"). Electrodes range from about 25 inches in diameter in the small furnaces to 65 inches in diameter in the larger ones. The brick furnace is constructed above the floor of the foundry so that the molten high-carbon ferrochromium can be tapped from the bottom. It is "charged," or loaded, from the top through a system of conveyor belts and chutes, and may or may not be stoked by attendants (open-top furnaces are stoked, while covered furnaces are not). The charge consists basically of chromium ore and coke, although other additives such as wood chips and quartz gravel may be used in specific applications (wood chips are added to give the charge porosity, and quartz is used as a slag conditioner). As the ore and coke mixture is heated, the component metals melt and sink to the bottom of the furnace. Molten iron and chromium mix together in the lowest portion of the furnace to form high-carbon ferrochromium, and the slag floats on top of them. The molten high-carbon ferrochromium is tapped about every 1-1/2 to 2 hours and poured into molds, where it is cooled for several hours until it solidifies. It is then removed and broken or ground according to customer specification.

The tap hole (about 6 inches in diameter) is made by drilling through the refractory into the lower part of the furnace and is closed with a clay mixture when all the high-carbon ferrochromium and slag have been drained. As the electrodes are consumed with use (about 12 inches a day), it is important that the depth to which they penetrate the charge be carefully controlled.

1/ Chromium is a hard, grayish-white, corrosion-resistant metal with a very high melting point (3,434 degrees Fahrenheit). In the metallurgical industry it is used primarily in the production of stainless steel, other high-chromium specialty steels, and high-temperature alloys to provide strength, hardness, and resistance to corrosion, wear, and heat. Chromium is added to these items by means of chromium-containing ferroalloys or chromium-containing scrap.

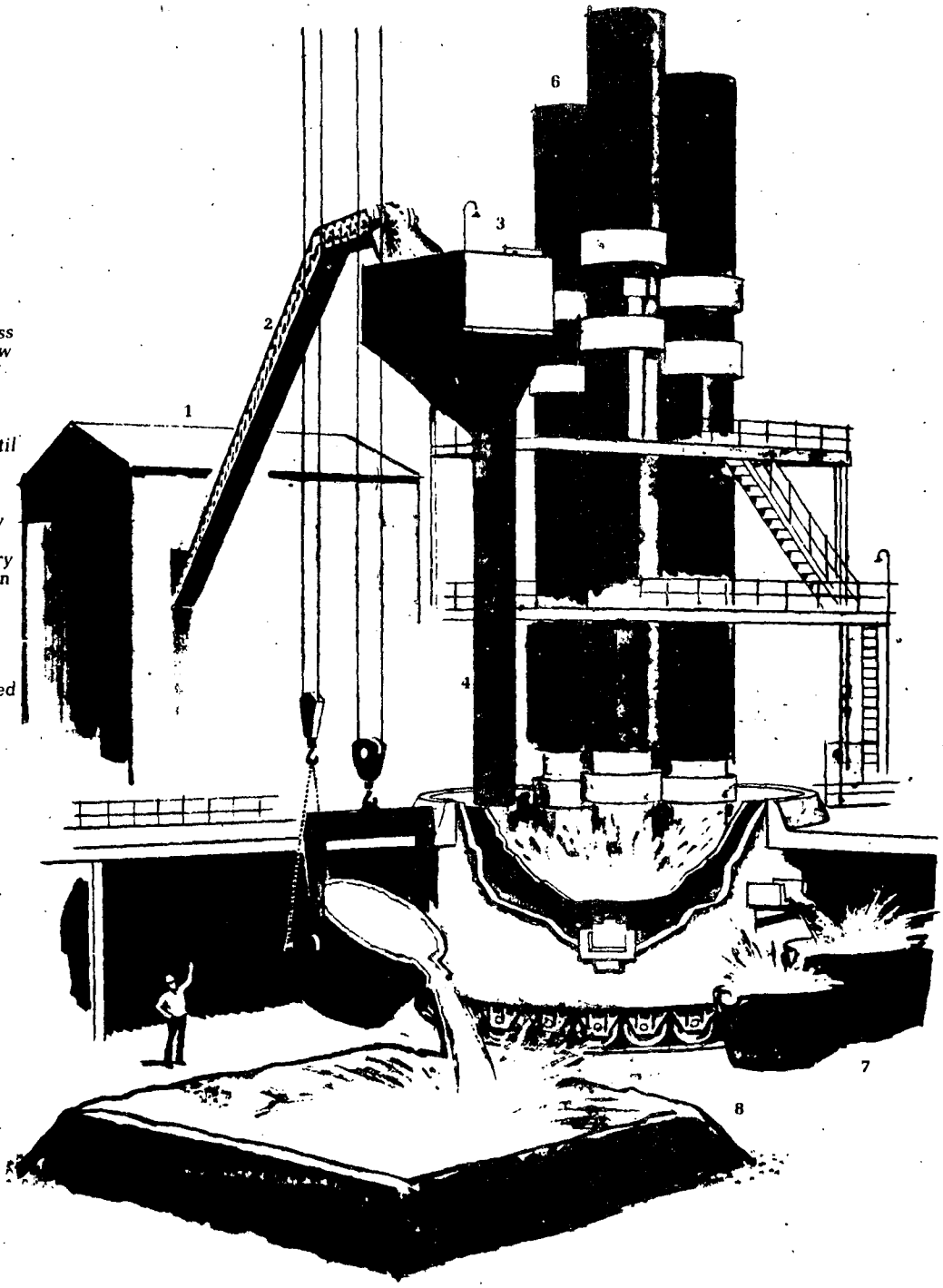
2/ Ferrochromium is defined in the TSUS as a ferroalloy which contains, by weight, over 30 percent of chromium but not over 10 percent of silicon.

3/ ASTM Specifications for Ferro-Alloys, March 1975, p. 12.

Figure 1.--High-carbon ferrochromium furnace.

The Making of Ferroalloys

The ferroalloy manufacturing process begins in the mix house (1) where raw materials – ore, coke and other process ingredients – are precisely weighed and mixed. A conveyor (2) carries this mixture to mix bins (3) which store the raw materials until the furnace operator releases them through chutes (4) to the furnace (5). Carbon electrodes (6), which extend into the furnace, carry the electricity required to produce the extremely high temperatures (6000°F) necessary to carry out the ferroalloy production process. Finished ferroalloy, in the molten state, is tapped into a ladle (7) and poured into molds (8) for cooling. After solidifying, the ferroalloy is crushed, screened according to desired size and shipped to the customer.



Source: Ferroalloys . . . adding character to steel, Airco, Inc., p.2.

Should the distance from the bottom of the electrodes to the bottom of the furnace become too great, the ferrochromium will cool and solidify, thus making a tap extremely difficult. Electrode depth is monitored continuously and adjusted by attendants as necessary.

There are two types of electrodes in use in domestic foundries: the amorphous carbon electrode, which is purchased whole (about 5 to 6 feet in length) and the self-baking electrode, which is made in position from a carbon mix. All domestically produced amorphous carbon electrodes are made by a subsidiary of Union Carbide Corp.

Production control.--High-carbon ferrochromium is manufactured to very stringent specifications, with some customers (such as those making aircraft parts) requiring that impurities be controlled to the "parts per million" level. To achieve this level of control, most firms have installed sophisticated equipment that will analyze high-carbon ferrochromium samples instantly. Such samples may be taken with each tap or even more often, depending on customer order.

Plant managers frequently measure the efficiency of their operations in terms of the amount of chromium recovered from the chromium ore. Recovery rates are improved by reprocessing slag to remove chromium that did not sink to the bottom of the furnace. This becomes progressively more and more costly, however, and economic considerations usually dictate a maximum recovery rate of about 92 percent. Beyond this point the costs of reprocessing the slag exceed the value of the chromium recovered. Two other factors that affect recovery rates are the grade of ore used and its cost. As shown in the following table, the unit value of imported chromium ore 1/ rose dramatically after 1973, indicating that the importance of a high recovery rate has also increased.

1/ Domestic deposits of chromium ore (or "chromite") are small and of low grade, thus making the U.S. chromite-consuming industry dependent almost exclusively upon imports for its source of new supply.

Chromium ore: U.S. imports for consumption, 1973-77, January-June 1977, and January-June 1978

Period	Quantity	Value	Unit value 1/
	1,000 long tons, chromium content	Million dollars	Per long ton, chromium content
1973	388	22	56.30
1974	457	29	62.42
1975	499	61	121.51
1976	476	70	147.24
1977	471	66	140.16
January-June--			
1977	226	30	131.22
1978	134	20	150.77

1/ Calculated from the unrounded figures.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Pollution control.--Ferrochromium furnaces generate a substantial amount of air pollution (primarily dust), and domestic producers have invested millions of dollars in pollution abatement. U.S. producers reported that expenditures for pollution-control equipment represent about 15 to 20 percent of the cost of constructing a new furnace. Three of the most common types of pollution-control equipment are described below:

1. The baghouse filter cleans the furnace smoke by passing it through a series of filter bags, which collect impurities in much the same manner as a vacuum cleaner;

2. The electrostatic precipitator controls emissions by negatively charging dust particles and then attracting them to a positively charged plate. This type of system is not suitable for other than ferrochromium furnaces and thus limits furnace convertibility in plants where it is employed; and

3. The wet scrubber removes particles by spraying the furnace exhaust with water. The wet dust falls to the bottom of the unit, where it is collected and removed.

The dust that is removed from the furnace smoke is frequently packaged and sold as a filler material; current research projects are aimed at developing this "packaged smoke" into a fertilizer. Future pollution control efforts are expected to center on solid waste disposal and capturing "fugitive" dust (i.e., that dust produced separately from the furnace by handling the ores, driving trucks through the yards, etc.).

Uses of ferrochromium

The bulk of all ferrochromium is used in manufacturing stainless steel. Chromium raw materials are available from the previously mentioned ferroalloys and from stainless steel scrap. The objective of stainless steel producers is to obtain the lowest cost chromium available, and the determining factors in obtaining the lowest cost chromium input are the relative prices of the alternative sources and power requirements. Thus, the initial steel melt will include as much stainless steel scrap as possible since it usually contains the lowest cost chromium units of alternative sources. The scrap addition will be followed with inputs of high-carbon ferrochromium and low-carbon ferrochromium, 1/ in that order. In the final stages of melt preparation the mixture is analyzed, and, if necessary, low-carbon ferrochromium will be added to obtain the desired composition of the melt. In the stainless-steel-making process that was generally used in the United States prior to 1968, low-carbon ferrochromium was the principal chromium ferroalloy addition because it was not technologically feasible to remove the excess carbon contained in high-carbon ferrochromium.

In 1968, Union Carbide Corp. introduced a stainless-steel-refining process which has significantly altered the use of high- and low-carbon ferrochromium. This process, known as Argon-Oxygen-Decarburization (AOD), allows the stainless steel producer, without prohibitive capital investments, to almost wholly substitute lower cost high-carbon ferrochromium for higher cost low-carbon ferrochromium to obtain the chromium input. All major domestic stainless steel producers have installed, or are in the process of installing, AOD capacity. Large argon-oxygen vessels were brought on stream in 1977 by * * *.

The following tabulation, which is based on consumption data from official statistics of the U.S. Bureau of Mines and stainless steel production data from the American Iron and Steel Institute, illustrates the change in the consumption pattern of the chromium-containing ferroalloys which has occurred as a result of stainless steel refining by the AOD process (in pounds, chromium content, of ferroalloy consumed per ton of stainless steel produced):

Ferroalloy	1968	1977
Low-carbon ferrochromium	115	23
High-carbon ferrochromium	67	154
Ferrosilicon chromium	34	17
Total	216	194

As the tabulation indicates, there has been an absolute decline in total consumption of chromium-containing ferroalloys per ton of stainless steel produced. This has resulted from an increase in the amount of stainless steel scrap consumed in the melt, which depends on the availability of the scrap and

1/ Low-carbon ferrochromium is defined in the TSUS as ferrochromium not containing over 3 percent, by weight, of carbon.

its price relative to prices of chromium-containing ferroalloys. In the same period there has been a 130-percent increase in the quantity of high-carbon ferrochromium consumed per ton of stainless steel produced.

After stainless steel production, the largest use of chromium-containing ferroalloys (although it is small in relation to total consumption of these alloys) is in the manufacture of superalloys. 1/ Superalloys, in turn, are used in such applications as jet-engine component parts. Additional smaller quantities of the chromium-containing ferroalloys are used in cast iron, welding and alloy hard-facing rods, and other miscellaneous products. High-carbon ferrochromium is also used as a raw material in the production of chromium metal. It is ground and dissolved in an acid solution, and then the chromium is plated onto sheets of stainless steel through electrolysis.

Substitutability of the chromium-containing ferroalloys

The chromium-containing ferroalloys, although produced from essentially the same raw materials, are different in two principal respects--chemical composition and price.

With regard to chemical composition, the high-carbon content of high-carbon ferrochromium limits the amount of the ferroalloy which may be added to the melt in the pre-AOD stainless-steel-refining process. If high-carbon ferrochromium were substituted entirely for low-carbon ferrochromium in that process, it would not be feasible to remove all the excess carbon, and the resulting stainless steel product would be unsuitable for use.

As a result of the introduction of the AOD stainless steel refining process, the ability to remove excess carbon feasibly was achieved and high-carbon ferrochromium became the principal chromium-containing ferroalloy addition to the stainless steel melt. Low-carbon ferrochromium can be substituted for high-carbon ferrochromium in both processes, but it would not be in the economic interest of stainless steel producers to effect such a substitution because high-carbon ferrochromium is substantially less expensive.

Ferrosilicon chromium differs from high-carbon and low-carbon ferrochromium in use as well as in chemical composition and price. This alloy is added to the stainless steel melt principally as a vehicle to return chromium oxide which has accumulated in the melt slag to the melt as chromium metal. Neither high-carbon nor low-carbon ferrochromium is capable of satisfactorily performing this function.

U.S. Government stockpile programs

Stockpiles of various "critical" materials are maintained by the U.S. Government (General Services Administration) in order to insure availability

1/ Superalloys are alloys developed for very high temperature service where relatively high stresses are encountered and oxidation resistance is frequently required.

should normal international trade be interrupted. At the end of June 1978, 402,695 short dry tons (SDT) of high carbon ferrochromium and 2,868,451 SDT of metallurgical-grade chromite were held in stockpile; 3,401 SDT of the chromite stockpile are committed under long-term contract for sale. The amount of high-carbon ferrochromium held in stockpile has remained virtually unchanged since 1972, and no authorization to dispose of any high-carbon ferrochromium held in stockpile is anticipated. These stockpiles are generally located close to ferrochromium plants, and, in fact, land for storage is sometimes leased from producers.

U.S. Tariff Treatment

High-carbon ferrochromium is classified under TSUS item 607.31 with a column 1 rate of duty of 0.625 cents per pound on chromium content. This rate has been in effect since January 1, 1948. The ad valorem equivalent of the current rate based on imports in 1977 was 2.0 percent. Low-carbon ferrochromium is classified under TSUS item 607.30, with a column 1 rate of duty of 4 percent ad valorem. The current rate represents a reduction, pursuant to the Kennedy round negotiations, from 8.5 percent ad valorem applicable on December 31, 1967. High-carbon ferrochromium is not designated as an eligible article for purposes of the Generalized System of Preferences.

History of the Rhodesian Chrome Embargo

On December 16, 1966, the United Nations Security Council, with the affirmative vote of the United States, adopted Resolution 232, which called upon all U.N. members to prevent the--

> (importation) into their territories of . . . chrome . . . originating in Southern Rhodesia and exported therefrom after (December 16, 1966).

In compliance with Resolution 232, on December 19, 1966, the President issued Executive Order 11322 1/ prohibiting the importation into the United States of, among other products, Rhodesian chrome or products made therefrom in Rhodesia or elsewhere.

The embargo on Rhodesian chrome remained in effect until January 1, 1972, the effective date of the so-called Byrd amendment to section 10 of the Strategic and Critical Materials Stock Piling Act. The Byrd amendment 2/ provides in pertinent part that--

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1/ 3 CFR 606.
2/ 50 U.S.C 98h-1.

> Notwithstanding any other provision of law . . . the President may not prohibit or regulate the importation into the United States of any material determined to be strategic and critical pursuant to the provisions of this Act, if such material is the product of any foreign country or area not listed as a Communist-dominated country or area in general headnote 3(d) of the Tariff Schedules of the United States . . . for so long as the importation into the United States of material of this kind which is the product of such Communist-dominated countries or areas is not prohibited by any provision of law.

Since Rhodesia is not a Communist-dominated country, and inasmuch as the United States imported substantial quantities of strategic and critical chromium-bearing materials from Communist countries (notably the U.S.S.R.), the Byrd amendment implied the resumption of Rhodesian chromium exports to the United States.

The Byrd amendment was in effect with respect to Rhodesian chrome until the passage, on March 18, 1977, of Public Law 95-12, 1/ an amendment to section 5 of the United Nations Participation Act of 1945. 2/ That amendment provides in part that--

> Any Executive order . . . which applies measures against Southern Rhodesia pursuant to any United Nations Security Council Resolution may be enforced, notwithstanding the provisions of any other law.

Public Law 95-12 further provides that so long as the U.N. economic sanctions with regard to Rhodesia remain in effect, shipments of chromium-containing steel mill products may not be released from customs custody for entry into the United States unless a certificate of origin with respect to each such shipment has been filed with the Secretary of the Treasury and such certificate establishes that the chromium contained in the shipment is not of Rhodesian origin.

U.S. Producers

Five U.S. firms produced high-carbon ferrochromium in 1978: Airco, Inc., production facilities in Charleston, S.C.; 3/ Chromium Mining & Smelting Corp., production facilities in Woodstock, Tenn.; 3/ Interlake, Inc., production facilities in Beverly, Ohio; 3/ Satralloy, Inc., production facilities in Steubenville, Ohio; and Union Carbide Corp., production facilities in Marietta, Ohio.

1/ 91 Stat. 22.
2/ 22 U.S.C. 287c.
3/ Member of the Committee of Producers of High-Carbon Ferrochromium.

The Alloys Division of Airco, Inc., is by far the largest domestic producer of high-carbon ferrochromium, with an annual capacity of more than * * * short tons, chromium content; in 1977, Airco's production amounted to * * * tons or * * * percent of total U.S. production. During January-June 1978, substantially all of the shares of Airco, Inc., were acquired by BOC International, London, England. No significant operating or management changes were made at Airco following the purchase. Airco has subsidiary plants in Sweden, the United Kingdom, and West Germany, * * *.

Chromium Mining & Smelting Corp. is a wholly owned subsidiary of Chromasco, Ltd., Montreal, Quebec. At present, high-carbon ferrochromium is produced by this firm only in Tennessee, * * *. In 1977, Chromium Mining & Smelting accounted for * * * percent of total U.S. high-carbon ferrochromium production and had a production capacity of * * * tons.

Interlake, Inc., produces high-carbon ferrochromium in its Globe Metallurgical Division in Beverly, Ohio. Interlake accounted for * * * percent of U.S. high-carbon ferrochromium production and had a capacity of nearly * * * tons in 1977.

Satralloy, Inc., is a subsidiary of Satra Corp., a trading firm which is the principal domestic supplier of chromium ore from the U.S.S.R. In 1973, Satra Corp. purchased a ferroalloy plant formerly owned by Foote Mineral Co. and established Satralloy, Inc., as an operating subsidiary. Satralloy, Inc., specializes in the production of low-carbon ferrochromium and ferrosilicon chromium, but had a high-carbon ferrochromium production capacity of about * * * tons in 1977.

The Metals Division of Union Carbide Corp. has a high-carbon ferrochromium capacity of about * * * tons in the United States. A Union Carbide affiliate operates a major high-carbon ferrochromium plant in the Republic of South Africa.

Channels of Distribution

Domestically produced high-carbon ferrochromium is marketed either directly by the producer or through sales agents. Freight is normally equalized with the nearest competitive producing point, and prices may be quoted on an f.o.b., point-of-shipment basis or on a delivered basis. Shipments are made by water, rail, or truck depending on available facilities. Imported high-carbon ferrochromium is generally marketed through brokers, although at least one consumer and two producers have imported directly from affiliated overseas plants.

The Question of Increased Imports

U.S. imports

Quarterly import data for the period January 1973-June 1978 are presented in figure 2 and the table on page A-17. The trend line in figure 2 shows that imports increased at an annual rate of about 13 percent during the period. In addition, the relationship between the trend line and the four-quarter moving average 1/ indicates that after the surge in imports in 1975, the level of imports continued to increase at about the same rate as in 1973 and 1974 (both the pre-1975 and the post-1975 moving average roughly parallel the trend line). The large inflow of imported high-carbon ferrochromium in 1975 was not followed by a period of less than average imports as might have been expected, but was apparently absorbed into the U.S. market at the expense of U.S. production. Importers of high-carbon ferrochromium indicate that the large increase in imports in 1975 was primarily due to an overestimation of U.S. demand. Stainless steel production had almost doubled from 1971 to 1974, and the outlook was for a continuation of this trend. In 1975, when stainless steel production fell by 48 percent, high-carbon ferrochromium importers, as well as producers and consumers, were left with huge inventories.

The large increase in imports of high-carbon ferrochromium in the first quarter of 1978 is partly attributable to the Commission's affirmative determination and remedy recommendation in its investigation No. TA-201-28. On December 1, 1977, the Commission recommended that the rate of duty on imported high-carbon ferrochromium be increased from an ad valorem equivalent (AVE) of about 2 percent to an AVE of about 32 percent. 2/ The President was required to act on the Commission's recommendation within 60 days, and during that time many importers attempted to enter as much high-carbon ferrochromium as possible prior to a potential duty increase. As shown in the tabulation on page A-18, the quantity of imports fell sharply (allowing a month's lag for

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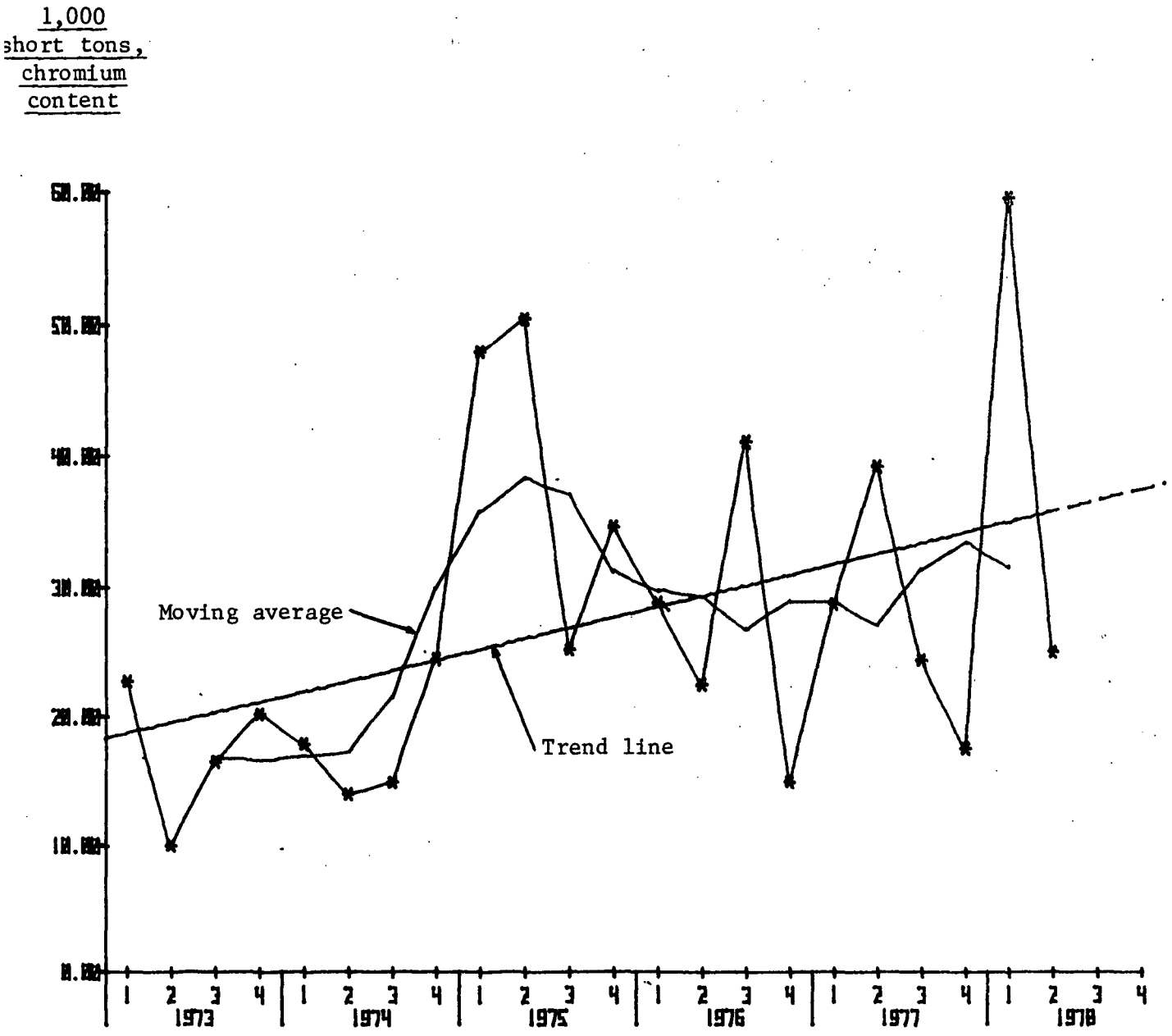
1/ A moving average is used to remove the effects of seasonal or other cyclical variations. It is calculated by averaging each period's data with that of one or more preceding periods and one or more succeeding periods.

2/ Commissioner Ablondi recommended an increase to an AVE of approximately 10 percent.

Figure 2.--High-carbon ferrochromium: U.S. imports for consumption, by quarters, 1973-77 and January-June 1978



Source: Compiled from official statistics of the U.S. Department of Commerce.

High-carbon ferrochromium: U.S. imports for consumption and production, by quarters, January 1973-June 1978

Period	Imports	Production	Ratio of imports to production
	Short tons chromium content	Short tons chromium content	Percent
1973:			
January-March	22,812	38,688	59.0
April-June	9,957	40,164	24.8
July-September	16,531	43,569	37.9
October-December	20,233	42,892	47.2
Total	71,916	158,550	45.4
1974:			
January-March	17,875	34,919	51.2
April-June	14,047	37,262	37.8
July-September	14,911	37,428	39.8
October-December	24,485	37,379	65.5
Total	71,319	144,910	49.2
1975:			
January-March	47,875	34,828	137.5
April-June	50,407	19,783	254.8
July-September	25,198	13,594	185.4
October-December	34,571	9,243	374.0
Total	158,055	78,071	202.5
1976:			
January-March	28,820	24,457	117.8
April-June	22,467	27,697	81.1
July-September	41,148	36,465	112.8
October-December	14,872	18,826	79.0
Total	107,307	105,237	102.0
1977:			
January-March	28,676	22,869	125.4
April-June	39,178	34,905	112.2
July-September	24,454	26,860	91.0
October-December	17,540	28,169	62.3
Total	109,847	112,803	97.4
1978:			
January-March	59,460	23,542	252.6
April-June	25,048	24,224	103.4
Total	84,508	47,766	176.9

Source: Compiled from official statistics of the U.S. Department of Commerce and the U.S. Bureau of Mines.

Note.--Because of revisions in annual data, quarterly figures may not add to the totals shown.

material in transit) following the President's decision on January 27, 1978, to not impose the higher tariff (in 1,000 short tons, chromium content):

1977:	
January	14.6
February	6.1
March	7.9
April	6.0
May	11.3
June	21.9
July	9.4
August	10.0
September	5.1
October	8.1
November	4.8
December	4.6
1978:	
January	18.6
February	32.6
March	8.3
April	3.1
May	12.9
June	9.1

Similarly, the increase in imports in mid-1977 is partly explained by a last minute attempt to enter Rhodesian high-carbon ferrochromium prior to the embargo against that country's goods. 1/

The Republic of South Africa and Rhodesia have traditionally been the principal sources of imported high-carbon ferrochromium. Since the United States embargoed imports from Rhodesia, however, the Republic of South Africa has become by far the dominant source, as shown in the table on page A-19. Import data on high-carbon ferrochromium and low-carbon ferrochromium are detailed by sources in tables 1 and 2, respectively, appendix F.

1/ While the effective date of the embargo was March 18, 1977, high-carbon ferrochromium from Rhodesia was allowed entry into the United States as long as it had been readied for ocean transport by that date. Accordingly, imports of high-carbon ferrochromium from Rhodesia continued through August 1977.

High-carbon ferrochromium: Share of total imports (based on quantity) supplied by principal sources, 1973-77, January-June 1977, and January-June 1978

(In percent)

Period	Share of total imports supplied by--				
	Republic of South Africa	Rhodesia	Yugoslavia	Brazil	Other
1973	33	45	3	6	14
1974	34	28	20	8	10
1975	26	33	5	6	30
1976	39	25	13	14	9
1977	52	25	14	6	4
January-June--					
1977	40	35	15	5	5
1978	81	0	16	0	3

Source: Compiled from official statistics of the U.S. Department of Commerce.

Note.--Because of rounding, figures may not add to 100.

The ratio of U.S. imports to production

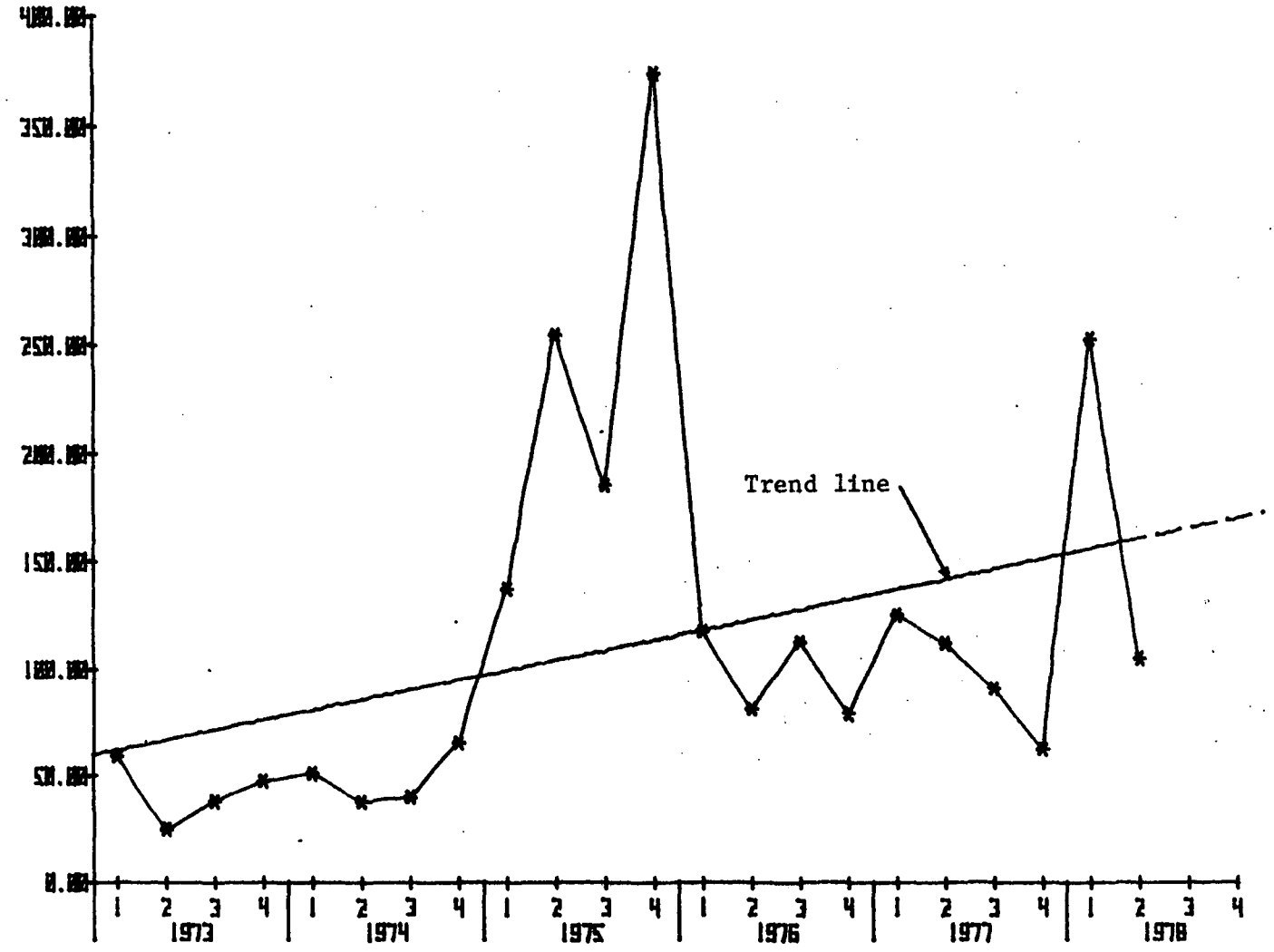
The trend in the ratio of U.S. imports of high-carbon ferrochromium to U.S. production is very similar to the trend in absolute imports, as shown in figure 3. The ratio of imports to production was 97 percent in 1977, slightly less than the 102 percent in 1976, but in January-June 1978, the ratio jumped sharply to 177 percent.

The Question of Serious Injury to the Domestic Industry

U.S. production

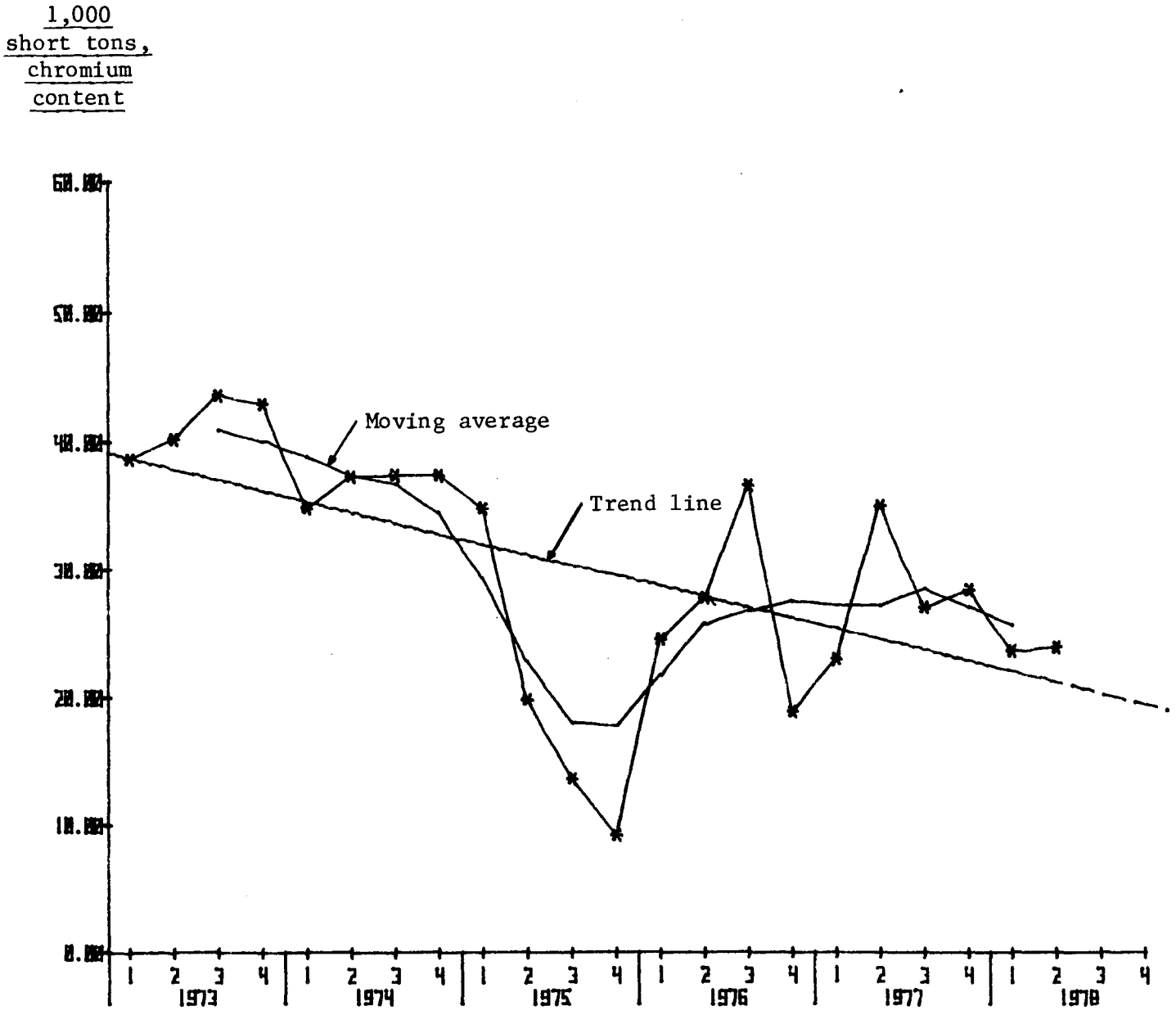
As shown in figure 4, the trend in U.S. production of high-carbon ferrochromium is strongly downward, and production in January-June 1978 was lower than that in any January-June period under study. The four-quarter moving average for production indicates that while the U.S. industry made some recovery from the recessionary levels of production in 1975, the recovery only took the industry back to a level of production closely in line with the declining trend that had been established prior to 1975. Production data for low-carbon ferrochromium are presented in table 3.

Figure 3.--High-carbon ferrochromium: Ratios of U.S. imports for consumption to U.S. production, by quarters, 1973-77 and January-June 1978



Source: Compiled from official statistics of the U.S. Department of Commerce and the U.S. Bureau of Mines.

Figure 4.--High-carbon ferrochromium: U.S. production, by quarters, 1973-77 and January-June 1978



Source: Compiled from official statistics of the U.S. Bureau of Mines.

Utilization of productive facilities

Domestic producers operated at about 57 percent of capacity in 1977, compared with 55 percent in 1976, 41 percent in 1975, and 88 percent in 1974. In January-June 1978, the capacity utilization rate fell to 50 percent. Data on U.S. producers' productive capacity is presented below:

High-carbon ferrochromium: U.S. production capacity, 1/ 1973-77, January-June 1977, and January-June 1978

Period	Production capacity	Ratio of production to capacity
	Short tons, chromium content	Percent
1973	193,906	82
1974	164,801	88
1975	188,763	41
1976	191,335	55
1977	196,339	57
January-June--		
1977	96,616	60
1978	95,899	50

1/ Based on each firm's maximum potential output with a product mix which permits facilities to be operated under optimum conditions.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission and from official statistics of the U.S. Bureau of Mines.

Furnace convertibility

Submerged-arc furnaces are generally designed to make high-carbon ferrochromium, ferrosilicon chromium, high-carbon ferromanganese, and ferrosilicon without requiring any major furnace modifications. It is advisable, however, to perform some maintenance, such as hearth digout, during any conversion. From January 1972 through June 1978, domestic producers reported a total of five furnace conversions, as follows: high-carbon ferrochromium to high-carbon ferromanganese (1973), ferrosilicon to high-carbon ferrochromium (1974), ferrosilicon chromium to high-manganese blocking chrome (1975), high-manganese blocking chrome to high-carbon ferromanganese (1975), and high-carbon ferrochromium to ferrosilicon (1977).

It is usually not economical to produce ferrosilicon in small- or medium-size furnaces. Hence, for companies without large furnaces, such as * * * the option of changing the product mix in times of changing demand is limited.

U.S. producers' shipments

U.S. producers' shipments of high-carbon ferrochromium during 1973-77 followed generally the same trend as production (table 4, figure 5, and the table below). Shipments in January-June 1978 were down about 23 percent compared with those in the corresponding period of 1977.

Ferrochromium: U.S. producers' shipments, by types, 1973-77, January-June 1977, and January-June 1978

Type	1973	1974	1975	1976 1/	1977 2/	January-June-- 1977 2/	January-June-- 1978 2/
	Quantity (1,000 short tons, chromium content) 3/						
High-carbon ferrochromium	171	154	78	106	123	68	52
Low-carbon ferrochromium	73	65	33	22	15	9	8
Total	243	220	111	128	138	77	61
	Value (Million dollars)						
High-carbon ferrochromium	73	92	78	83	96	52	40
Low-carbon ferrochromium	46	71	56	39	25	14	13
Total	119	163	135	122	121	66	52
	Unit value (Cents per pound, chromium content) 4/						
High-carbon ferrochromium	21	30	50	39	39	38	38
Low-carbon ferrochromium	32	55	86	88	82	80	77

1/ Revised.

2/ Values estimated by the staff of the U.S. International Trade Commission on the basis of data submitted in response to questionnaires.

3/ Estimated from gross weight on the basis of average chromium content of production as reported by the U.S. Bureau of Mines.

4/ Calculated from the unrounded figures.

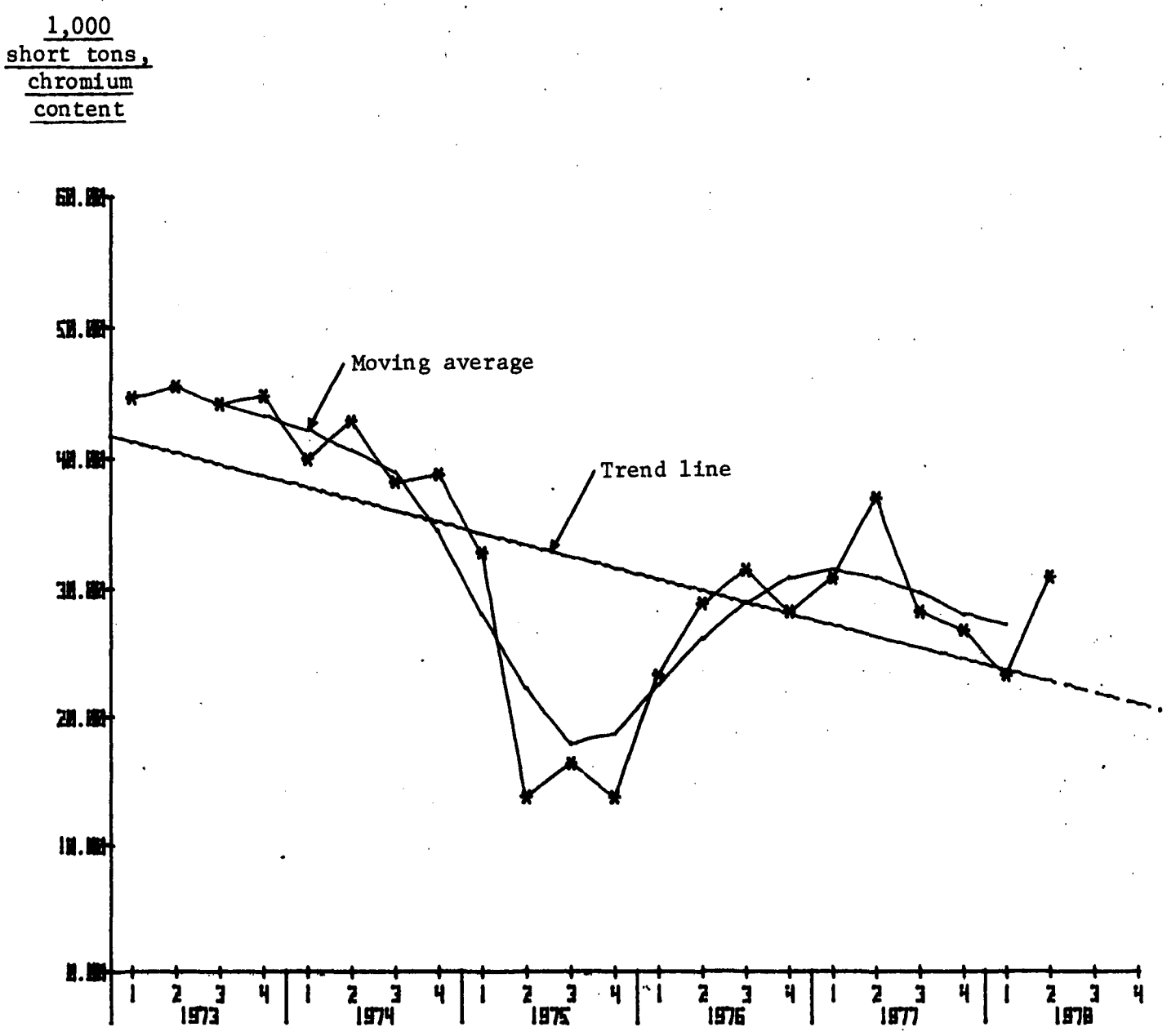
Source: Compiled from official statistics of the U.S. Bureau of Mines, except as noted.

Note.--Because of rounding, figures may not add to the totals shown.

U.S. inventories

Inventories of high-carbon ferrochromium are maintained by three distinct groups in the U.S. market--producers, importers, and consumers. Each is discussed separately in the following paragraphs. Total inventories jumped

Figure 5.--High-carbon ferrochromium: U.S. producers' shipments, by quarters, 1973-77 and January-June 1978



Source: Compiled from official statistics of the U.S. Bureau of Mines.

sharply in 1975 and then rose irregularly to record levels in January-June, 1978 (table 5 and figure 6).

Producers' inventories.--U.S. producers' inventories of high-carbon ferrochromium rose sharply during 1975 and 1976, but have generally fallen since late 1976 (see table 5 and the table below). There were 25,449 tons held in inventory on June 30, 1978 compared with 30,721 tons held on June 30, 1977. As a share of shipments, producers' inventories jumped greatly in 1975, remained high in 1976, and then fell by nearly 50 percent in 1977. The substantial rise in inventory levels in 1975 is attributed to an overestimation of demand throughout the industry. Importers and consumers had made substantial advance commitments to purchase high-carbon ferrochromium in 1974, when demand for stainless steel was at a very high level, but by the second quarter of 1975, it was clear that stainless steel production was off sharply, and high-carbon ferrochromium inventories grew quickly at the producer, importer, and consumer levels.

High-carbon ferrochromium: U.S. producers' shipments and end-of-period inventories, 1973-77, January-June 1977, and January-June 1978

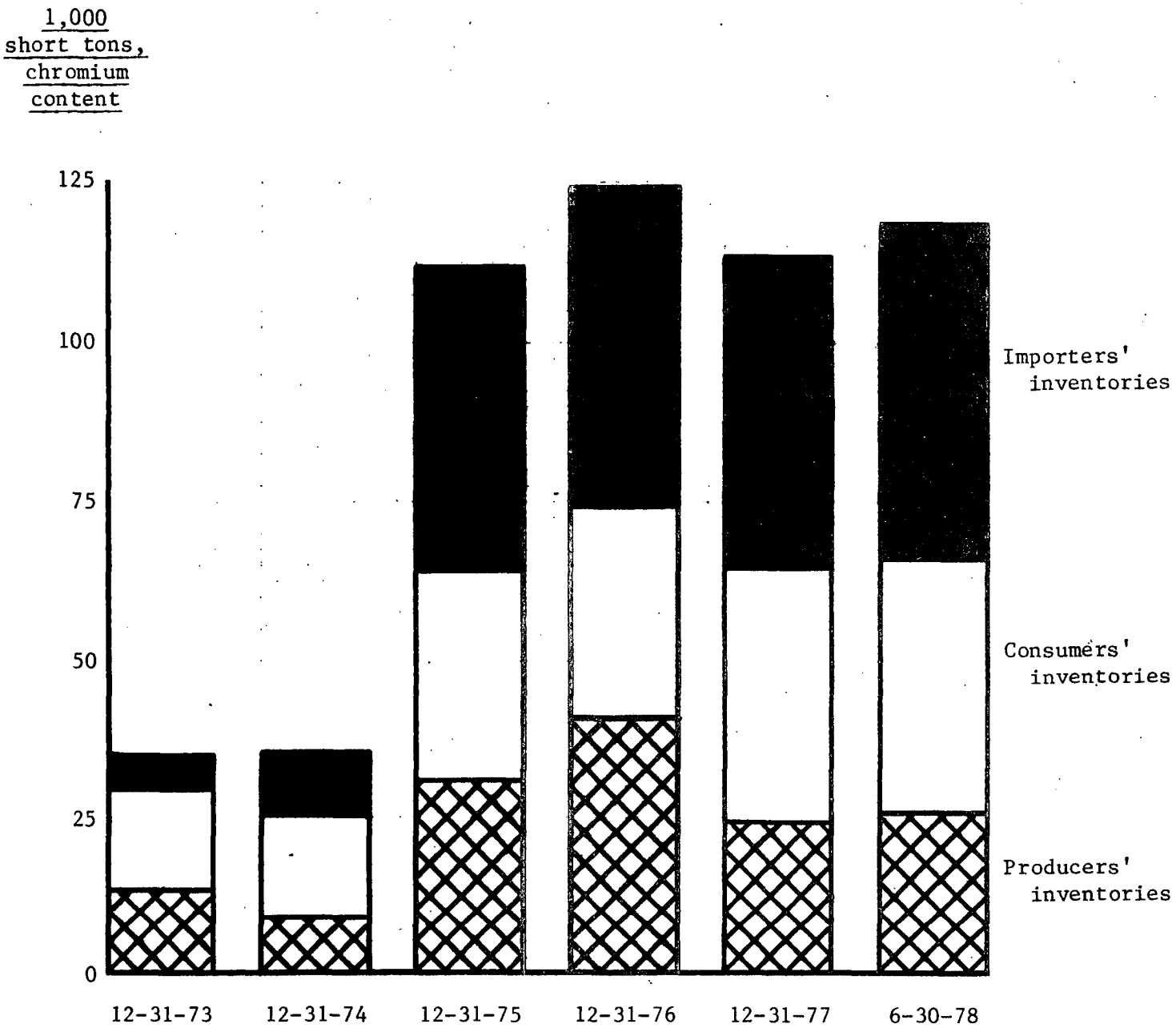
Period	Producers' shipments	Producers' end-of-period inventories	Ratio of inventories to shipments
	Short tons, chormium content	Short tons, chromium content	Percent
1973	170,573	13,518	8
1974	154,415	8,957	6
1975	78,412	31,022	40
1976	106,165	40,964	39
1977	122,994	24,889	20
January-June--			
1977	67,900	30,721	1/ 23
1978	52,416	25,449	1/ 24

1/ Based on half-year shipments converted to an annual rate.

Source: Compiled from official statistics of the U.S. Bureau of Mines.

Importers' inventories.--High-carbon ferrochromium inventories held by importers also increased sharply in 1975 as shown in the table on page A-27. Since that year, importers' inventories have moved irregularly, although a record level of 79,220 tons was reached on March 31, 1978. As mentioned earlier, the inventory accumulation in 1978 is attributed almost certainly to an attempt by importers and consumers to "beat" the recommended increase in the rate of duty.

Figure 6.--High-carbon ferrochromium: U.S. inventories, by types, December 31 of 1973-77, and June 30, 1978



Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission and from official statistics of the U.S. Bureau of Mines.

High-carbon ferrochromium: U.S. importers' shipments and end-of-period inventories, 1973-77, January-June 1977, and January-June 1978

Period	Importers' shipments 1/	Importers' end-of-period inventories	Ratio of inventories to shipments
	Short tons, Chormium content	Short tons, chromium content	Percent
1973	77,201	5,764	7
1974	67,111	9,972	15
1975	119,509	48,518	41
1976	106,231	49,594	47
1977	110,560	48,881	44
January-June--			
1977	53,943	63,505	2/ 59
1978	80,874	52,515	2/ 32

1/ Derived by adjusting total imports for changes in inventories.
2/ Based on 1/2-year shipments converted to an annual rate.

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

Consumers' inventories.--Inventories held by consumers increased annually from 1973 to 1977, when they peaked on December 31, 1977, at 39,635 tons. By the end of June 1978, consumers' inventories had risen further to 40,619 tons, as shown in the following table.

High-carbon ferrochromium: U.S. consumption and consumers' end-of-period inventories, 1973-77, January-June 1977, and January-June 1978

Period	Consumption	Consumers' end-of-period inventories	Ratio of inventories to consumption
	Short tons, chromium content	Short tons, chromium content	Percent
1973	168,539	15,642	9
1974	188,728	16,225	9
1975	123,772	32,967	27
1976	159,480	33,459	21
1977	190,218	39,635	21
January-June--			
1977	102,381	30,929	1/ 15
1978	113,243	40,619	1/ 18

1/ Based on 1/2-year consumption converted to an annual rate.

Source: Compiled from official statistics of the U.S. Bureau of Mines.

U.S. exports

Exports of high-carbon ferrochromium have generally been small in relation to total U.S. producers' shipments (about 5 percent), but during 1973 they exceeded 15,000 tons (about 10 percent of shipments), primarily because price controls in the United States made foreign sales more attractive. Export data are presented in table 6.

Employment

The average number of persons engaged in the manufacture of high-carbon ferrochromium is shown in detail in table 7 and summarized in the following table.

Average number of employees engaged in the manufacture of high-carbon ferrochromium, total and production and related workers, 1973-77, January-June 1977, and January-June 1978

Period	All employees	Production and related workers
1973	774	682
1974	770	674
1975	538	460
1976	600	502
1977	593	477
January-June--		
1977	592	470
1978	496	396

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

The following tabulation provides data on firms that petitioned the U.S. Department of Labor for adjustment assistance for their workers who were alleged to have been adversely affected by imports of ferrochromium alloys during January 1975-June 1978:

Company	Number of workers involved	Status of petition
Satralloy, Inc. 1/	170	Certified, Aug. 24, 1976
Interlake, Inc. 2/	120	Certified, Nov. 12, 1976
Airco, Inc. 3/	120	Certified, Mar. 29, 1977
Union Carbide Corp. 4/	850	Certified, Aug. 29, 1977
Chromium Mining & Smelting Corp. 5/	120	Pending
Airco, Inc. 6/	7/	Pending

1/ Ferrochrome alloys.
2/ Ferrochrome alloys and silicon metal.
3/ High-carbon ferrochromium.
4/ Low-carbon ferrochromium and high-carbon ferromanganese.
5/ Ferroalloys and chrome products.
6/ Chrome, silicon, ferrosilicon, and manganese.
7/ Not available.

Man-hours.--Man-hours worked by production and related workers engaged in the manufacture of high-carbon ferrochromium are detailed in table 8 and summarized in the following tabulation (in thousands of man-hours):

Period	
1973	1,424
1974	1,405
1975	930
1976	1,036
1977	1,035
January-June--	
1977	520
1978	455

Productivity.--The average amount of high-carbon ferrochromium produced per man-hour showed little variation throughout the January 1973-June 1978 period except in 1975, when productivity was down about 18 percent owing to inefficient levels of capacity utilization. In 1976, productivity recovered to about the same level as in 1974, as indicated in the following tabulation (in tons, chromium content, per man-hour):

Period	
1973	0.111
1974	.103
1975	.084
1976	.102
1977	.109
January-June--	
1977	.111
1978	.105

Wages.--Earnings received by workers producing high-carbon ferrochromium are closely linked with earnings received by workers in the steel industry. Average hourly and weekly earnings for U.S. production workers producing durable goods, primary metals, and basic steel products, are shown in table 9. 1/ Average hourly earnings of U.S. production workers producing basic steel products increased 55 percent from 1973 to 1977, or more than 11 percent a year. In June 1978, they stood at $9.25, compared with $8.14 for all workers in primary metals and $6.47 for workers in the durable goods industries.

Real hourly and weekly earnings of U.S. production workers (table 10) were derived from the figures in table 9 by using the Consumer Price Index as a price deflator. Real hourly earnings increased from 1973 to 1977, but at a lower rate than unadjusted earnings. For basic steel products, real hourly earnings increased 14 percent from 1973 to 1977, or a little more than 3 percent a year. At $4.74 (in 1967 dollars) by June, 1978, they remained higher than the $4.17 recorded for primary metals and the $3.31 level for the durable goods industries.

Prices

Quarterly price data on imported and domestically produced high-carbon ferrochromium are presented, by chromium specification, in the tables on the following pages, in tables 11 and 12, and in figure 7. 2/ Figure 7 shows that average prices for the greatest volume of imported high-carbon ferrochromium (over 58 percent chromium) 3/ sold were generally lower than the comparable prices of U.S.-produced high-carbon ferrochromium prior to 1974 and after 1975, but that they exceeded those for domestically produced high-carbon ferrochromium during 1974 and 1975. Prices peaked for both imported and U.S.-produced high-carbon ferrochromium during January-June 1975, and then fell irregularly through June 1978, reaching their lowest level since mid-1974. The period during which prices of imported high-carbon ferrochromium exceeded prices of U.S.-produced high-carbon ferrochromium is considered atypical. The combination of high actual demand in 1974 and high forecast demand in 1975 for high-carbon ferrochromium resulted in a sellers' market and artificially high prices, especially for the imported product. When it became clear that the optimistic projections for demand in 1975 were vastly overstated, prices tumbled and resumed the relationship that existed prior to 1974, i.e., prices for imported high-carbon ferrochromium were generally lower than prices for the comparable U.S.-produced product.

1/ Earnings of U.S. production workers producing high-carbon ferrochromium and other ferroalloys are included in basic steel products.

2/ See table 13 for prices of low-carbon ferrochromium.

3/ Judging from responses to questionnaires, the great bulk of U.S.-produced high-carbon ferrochromium has a chromium content of over 65 percent. In 1976 price data provided by importers was evenly distributed among the three grades of high-carbon ferrochromium specified in this report, but in 1978, the bulk of the data provided by importers was for the 52-55 percent chromium content grade.

High-carbon ferrochromium: Ranges of prices for the greatest volume of the imported and U.S.-produced products sold, by chromium specifications and by quarters, January 1973-June 1978

(Cents per pound)

Period	Over 65 percent chromium		58-64 percent chromium		52-55 percent chromium	
	Imported	U.S.-produced	Imported	U.S.-produced	Imported	U.S.-produced
1973:						
January-March	16-36	18-20	14-19	24	15-19	16
April-June	16-24	20-22	18-20	24-25	15-19	20
July-September	15-26	21-23	1/	25-27	15-20	20
October-December	19-27	21-23	21	25	15-20	20
1974:						
January-March	20-60	23-26	30	25	17-26	20
April-June	28-70	28-32	1/	41	18-53	27
July-September	34-89	32-37	29-90	46	26-35	36
October-December	37-95	37-50	30-90	51	26-35	41
1975:						
January-March	56-95	48-57	55-100	59	33-75	49
April-June	58-85	50-58	55-90	59	30-54	49
July-September	45-82	54-65	39-90	59	40-52	49
October-December	39-82	50-56	32-90	59	30-49	49
1976:						
January-March	38-82	45	34-55	59	36-50	44
April-June	28-76	41-45	34-77	59	38-50	44
July-September	31-51	42-44	34-77	59	37-50	42
October-December	31-47	40-43	34-77	59	38-48	42
1977:						
January-March	27-41	42-43	36-47	40-49	30-41	42
April-June	25-47	39-43	36-76	40-59	34-40	42
July-September	36-47	36-41	35-43	57-59	34-38	38-40
October-December	34-47	35-41	34-43	57	31-36	33-38
1978:						
January-March	30-41	34-41	33-37	34-57	31-39	29-38
April-June	30-40	34-43	33-35	34-57	28-35	32-38

1/ Not available.

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

High-carbon ferrochromium: Weighted average net prices for the greatest volume of the imported and U.S.-produced products sold, by chromium specifications and by quarters, January 1973-June 1978

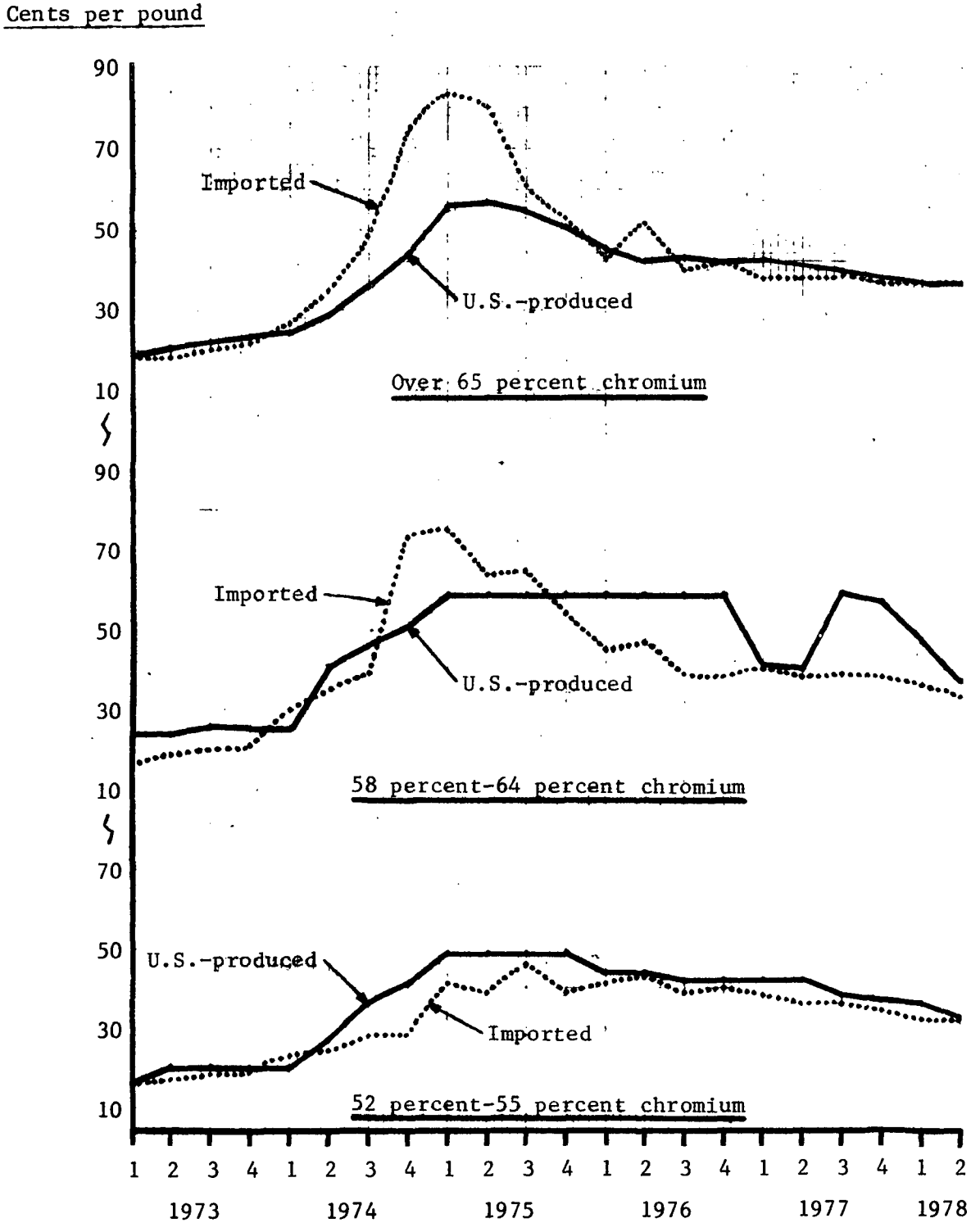
(Cents per pound)

Period	Over 65 percent chromium		58-64 percent chromium		52-55 percent chromium	
	Imported	U.S.-produced	Imported	U.S.-produced	Imported	U.S.-produced
1973:						
January-March	18	19	16	24	16	16
April-June	18	21	19	24	17	20
July-September	20	22	1/	26	18	20
October-December	22	23	21	25	19	20
1974:						
January-March	27	24	30	25	23	20
April-June	35	29	1/	41	24	27
July-September	49	36	39	46	28	36
October-December	74	44	73	51	28	41
1975:						
January-March	83	56	75	59	41	49
April-June	80	57	64	59	39	49
July-September	61	55	65	59	46	49
October-December	53	51	54	59	39	49
1976:						
January-March	43	45	45	59	41	44
April-June	52	42	47	59	43	44
July-September	40	43	39	59	39	42
October-December	42	42	38	59	40	42
1977:						
January-March	38	42	40	41	38	42
April-June	38	41	38	40	36	42
July-September	39	40	39	59	36	38
October-December	37	38	38	57	34	37
1978:						
January-March	37	37	36	47	32	36
April-June	37	37	33	37	32	33

1/ Not available.

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

Figure 7.--High-carbon ferrochromium: Weighted average prices for the greatest volume of the imported and U.S.-produced products sold, by chromium specifications and by quarters, January 1973-June 1978.



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

Both importers and U.S. producers indicate that prices began to rise in mid-1978; in some cases, by as much as 10 percent. Almet, Inc., a major importer of South African ferrochromium, reported the following average prices 1/ for the 52-55 percent chromium grade in the most recent months of 1978.

	Cents per pound
April	***
May	***
June	***
July	***

Price data are not available on a country-by-country basis, but as shown in table 1, the unit value of imports from each country of origin rose sharply in 1974 and 1975 and fell in 1976. Thus, all supplying countries participated in the opportunistic selling of 1974 and 1975, although only one, Japan, appears to have entered the market during the period and left following it.

High-carbon ferrochromium price trends are roughly in line with those for pig iron and all ferroalloys. In 1974 and 1975, however, high-carbon ferrochromium prices rose much more than did prices for related products, as shown in the following table of price indexes.

Indexes of U.S. wholesale prices for high-carbon ferrochromium and other selected commodities, 1972-77 and January-June 1978

(1972=100)

Period	All commodities	Intermediate materials	Pig iron and ferroalloys	High-carbon ferrochromium 1/	
				Imported 2/	U.S.-produced 2/
1972	100	100	100	100	100
1973	113	111	103	100	102
1974	134	137	150	237	160
1975	147	152	211	355	264
1976	154	159	209	227	207
1977	163	170	205	195	194
1978 (January-June)	172	178	203	190	178

1/ Over 65 percent chromium.

2/ Calculated from data submitted in response to questionnaires of the U.S. International Trade Commission.

Source: Compiled from official statistics of the U.S. Bureau of Labor Statistics, except as noted.

1/ Value of sales divided by quantity of sales.

As there are few differences in quality between comparable grades of imported and U.S.-produced high-carbon ferrochromium, sales are made primarily on the basis of price. Importers as well as domestic producers are generally able to buy their way into a market by offering the specified grade of high-carbon ferrochromium at a discounted price. In addition, importers and consumers indicated that imported high-carbon ferrochromium sells at a discount compared with the U.S.-produced product because of the longer lead times required on orders and the relatively higher risk associated with reliance on a foreign source of raw material.

Profit-and-loss experience of U.S. producers

Overall operations of the establishments.--Net operating profit of the five U.S. producers of high-carbon ferrochromium on their overall establishment operations in which this product was produced increased from * * * million in 1973 to * * * million in 1974, and then declined to * * * million in 1977, as shown in the table on page A-36. Profit as a percentage of net sales was 5.8 percent in 1973, 16.7 percent in 1974, and 2.9 percent in 1977. In January-June 1978, a net operating loss of * * * million was incurred.

Operations on high-carbon ferrochromium.--Net operating profit of the five U.S. producers of high-carbon ferrochromium on their high-carbon ferrochromium operations increased from $4.9 million in 1973 to $21.2 million in 1974, before declining each succeeding year to $3.5 million in 1977. As a percentage of net sales, net operating profit was 6.8 percent in 1973, 20.6 percent in 1974, and 4.0 percent in 1977. A net operating loss of $5.0 million was experienced in January-June 1978, compared with a net operating profit of $2.8 million in January-June 1977.

The impact of production costs and selling prices on profits can be seen in the following tabulation, which shows cost-of-sales as a percentage of sales.

Period	Percent
1973	89
1974	75
1975	78
1976	86
1977	90
January-June--	
1977	88
1978	109

Increasing production costs and stable or declining prices since 1975 resulted in the sharply lower profits.

Profit-and-loss data for high-carbon ferrochromium operations are very strongly influenced by the largest producer, Airco, Inc. In 1976, for example, * * *.

Profit-and-loss experience of five U.S. producers on their ferrochromium operations, by types, 1973-77, 1/ January-June 1977, and January-June 1978

Item and period	Net sales	Cost of sales	Gross profit	General administrative and selling expenses	Net operating profit or (loss)	Other expense, net	Net profit or (loss) before income taxes	Ratio of net operating profit or (loss) to net sales	Ratio of net profit or (loss) before income taxes to net sales
	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars	Percent	Percent
Total establishment operations:									
1973	* * *	* * *	* * *	* * *	* * *	* * *	* * *	5.8	5.0
1974	* * *	* * *	* * *	* * *	* * *	* * *	* * *	16.7	16.0
1975	* * *	* * *	* * *	* * *	* * *	* * *	* * *	15.1	14.0
1976	* * *	* * *	* * *	* * *	* * *	* * *	* * *	9.4	7.1
1977 2/	* * *	* * *	* * *	* * *	* * *	* * *	* * *	2.9	1.0
January-June--									
1977	* * *	* * *	* * *	* * *	* * *	* * *	* * *	5.0	2.8
1978 2/	* * *	* * *	* * *	* * *	* * *	* * *	* * *	(8.3)	(10.6)
Operations on high-carbon ferrochromium:									
1973	71,004	63,296	7,708	2,853	4,855	442	4,413	6.8	6.2
1974	103,216	77,615	25,601	4,381	21,220	1,137	20,083	20.6	19.5
1975	82,220	63,921	18,299	4,604	13,695	490	13,205	16.7	16.1
1976	88,772	75,902	12,870	4,946	7,924	1,117	6,807	8.9	7.7
1977	89,250	80,131	9,119	5,587	3,532	1,432	2,100	4.0	2.4
January-June--									
1977	48,095	42,496	5,599	2,766	2,833	652	2,181	5.9	4.5
1978	33,163	36,020	(2,857)	2,170	(5,027)	736	(5,763)	(15.2)	(17.4)
Operations on low-carbon ferrochromium:									
1973	44,448	43,235	1,213	2,040	(827)	276	(1,103)	(1.9)	(2.5)
1974	70,109	55,824	14,285	2,363	11,922	242	11,680	17.0	16.7
1975	53,493	37,456	16,037	2,168	13,869	502	13,367	25.9	25.0
1976	36,203	27,024	9,179	1,703	7,476	709	6,767	20.6	18.7
1977	23,140	18,563	4,577	1,318	3,259	685	2,574	14.1	11.1
January-June--									
1977	13,995	10,947	3,048	701	2,347	355	1,992	16.8	14.2
1978	11,203	11,021	182	663	481	316	(797)	4.3	(7.1)

1/ The accounting year of each of the five producers ended on or about December 31.
2/ Data is not comparable with other periods because * * *.

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

Investment in productive facilities.--To provide an additional measure of profitability, domestic producers were asked to supply information on their investment in productive facilities. 1/ As shown in the table below, the ratio of net operating profit to investment in productive facilities followed the same trend as did the ratio of net operating profit to net sales, rising in 1973 and 1974 and falling in 1975-77. The ratio of net operating profit to investment in productive facilities should not be construed as a return on total investment. Total investment includes, in addition to investment in productive facilities, investment in working capital, nonproductive facilities, and other fixed assets.

Investment in productive facilities and net operating profit of 5 U.S. producers of high-carbon ferrochromium, 1973-77

Item and year	Investment in productive facilities at yearend			Net operating profit	Ratio of net operating profit to investment in productive facilities in terms of--		
	Actual cost	Net book value	Replacement value		Actual cost	Net book value	Replacement value
	Million dollars	Million dollars	Million dollars	Million dollars	Percent	Percent	Percent
Total establishment operations:							
1973	348	122	1/	***	3.7	10.5	1/
1974	361	132	1/	***	15.0	41.0	1/
1975	388	149	1/	***	10.6	27.6	1/
1976	427	177	2/ 975	***	6.9	16.6	2/ 3.0
1977 3/	335	132	2/ 715	***	1.9	4.7	2/ .9
Operations on high-carbon ferrochromium:							
1973	47	23	1/	5	10.3	21.5	1/
1974	43	21	1/	21	49.8	102.5	1/
1975	44	21	1/	14	31.4	66.2	1/
1976	46	21	2/ 85	8	17.3	37.0	2/ 9.3
1977	49	22	2/ 137	4	7.3	16.0	2/ 3.1

1/ Not available.
2/ Data for 4 producers.
3/ Data is not comparable with earlier years because * * *.

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

Note.--Ratios are calculated from the unrounded figures.

1/ For purposes of this report, investment in productive facilities is the yearend value of assets used in the production of the specified product.

Balance sheet analysis.--Two U.S. producers were able to provide balance sheet data specifically with respect to their plant operations that include the production of high-carbon ferrochromium. The other three producers are operating divisions of large companies, thus making allocations for many assets and liabilities difficult and somewhat arbitrary.

Selected financial ratios for 2 U.S. producers 1/
of high-carbon ferrochromium, 1977

Item	Chromium Mining & Smelting Corp.	Satralloy, Inc.	Iron and steel industries	All durable goods manufacturers
Net operating profit as a share of--				
Net sales--------percent--	***	***	3.4	8.2
Total assets--------do----	***	***	4.0	11.3
Net worth (owners' equity)----------do----	***	***	8.2	21.8
Ratio of--				
Current assets to current liabilities----------	***	***	2.0	1.9
Cash plus accounts receivable to current liabilities ("quick or "acid test" ratio)------	***	***	1.0	.9
Debt to equity----------	***	***	1.0	.9

1/ Because 3 of the 5 U.S. producers are operating divisions of larger companies, balance sheet data (i.e., assets, debt, equity, etc.) are not available for them.

Source: Compiled from data submitted in response to questionnaires of the U.S. International Trade Commission and from Quarterly Financial Report for Manuafacturing, Mining, and Trade Corporations, Federal Trade Commission, Fourth Quarter, 1977.

The above ratios for Chromium Mining & Smelting Corp. and Satralloy, Inc. are * * *.

Research and development expenditures.--The five domestic producers had combined research and development expenditures incident to the production of chromium ferroalloys as follows (in thousand of dollars):

Period	
1973	267
1974	460
1975	682
1976	608
1977	547
January-June--	
1977	258
1978	221

Current research and development efforts are directed at pollution abatement, by-product development, and improved chromium recovery. There is also considerable interest among consumers in establishing the acceptability of the lower grade high-carbon ferrochromium in the stainless steel production process.

The Question of Imports as a Substantial Cause of Serious Injury

U.S. consumption and the ratio of imports to consumption

Data collected by the U.S. Bureau of Mines show that U.S. consumption of high-carbon ferrochromium fell by about 34 percent in 1975 and then rose rapidly to a record level of 190,218 tons, chromium content, in 1977 (table 14 and the table below).

High-carbon ferrochromium: U.S. imports for consumption and U.S. consumption, 1973-77, January-June 1977, and January-June 1978

Period	Imports	Consumption	Ratio of imports to consumption
	Short tons, chromium content	Short tons, chromium content	Percent
1973	71,916	168,539	43
1974	71,319	188,728	38
1975	158,055	123,772	128
1976	107,307	159,480	67
1977	109,847	190,218	58
January-June--			
1977	67,854	102,381	66
1978	84,508	113,243	75

Source: Compiled from official statistics of the U.S. Bureau of Mines and the U.S. Department of Commerce, except as noted.

In addition, consumption in January-June 1978, was up 11 percent compared with that in the corresponding period of 1977, reflecting continued high demand. The ratio of imports of high-carbon ferrochromium to U.S. consumption declined during 1975-77, but jumped to 75 percent of consumption in January-June 1978. The import-to-consumption ratios for both 1975 and January-June 1978, are affected by substantial buildups of importers' and consumers' inventories in both periods. When imports are adjusted for changes in importers' inventories, the import-to-consumption ratios for high-carbon ferrochromium are as follows (in percent):

Period	
1973	46
1974	36
1975	97
1976	67
1977	58
January-June--	
1977	53
1978	71

The adjusted ratio for 1975 remains very high and is believed to be attributable to understated inventory data. In addition, as several stainless steel producers import high-carbon ferrochromium for their own use, some imported ferrochromium is included in "consumers' inventories." As such inventories are not broken down by "imported" and "U.S.-produced," no allowance can be made for them in these calculations.

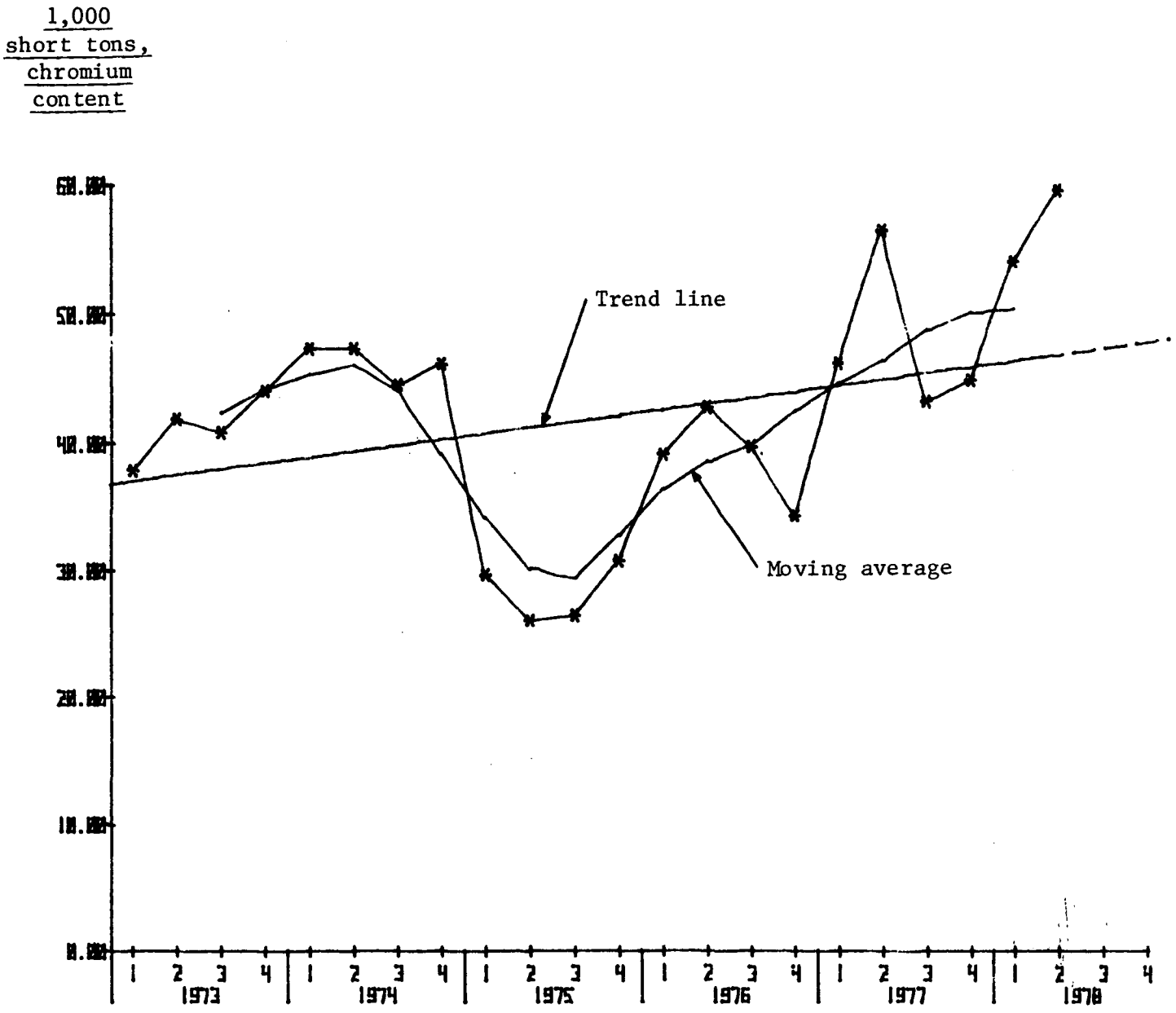
Quarterly consumption data are presented graphically in figure 8. It is clear from both the trend line and the four-quarter moving average that consumption is increasing.

Possible substantial causes of serious injury, or the threat of serious injury, other than imports

Stainless steel production.--Consumption of high-carbon ferrochromium is directly related to domestic production of stainless steel, as shown in figure 9, which presents a scatter diagram of these two variables. Regression lines have been plotted for the periods 1967-71 and 1973-77 to show the impact of the conversion to AOD technology (1972 appears to be the year during which most stainless steel producers converted to the AOD process). The correlation between high-carbon ferrochromium consumption and stainless steel production is high in both periods (r^2 = about 0.9), and the upward shift in the regression line from the earlier period to the latter reflects the increased usage of high-carbon ferrochromium that was allowed by the AOD process.

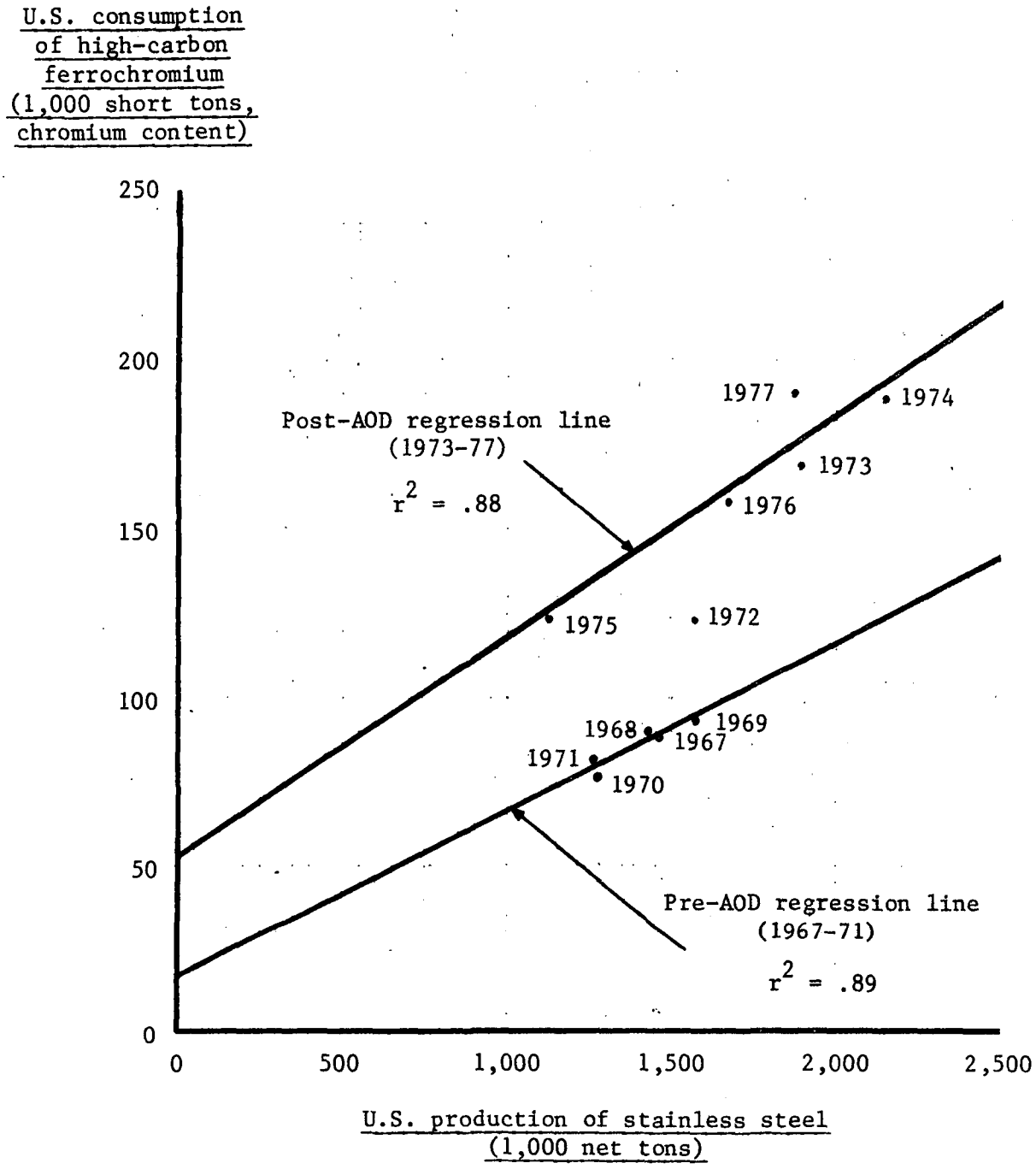
The relationship between domestic high-carbon ferrochromium production and stainless steel production is also strong, as shown in figure 10, but high-carbon ferrochromium production clearly has not maintained its formerly close relationship with consumption, as both imports and inventories have played greater roles in supplying the stainless steel industry.

Figure 8.--High-carbon ferrochromium: U.S. consumption, by quarters, 1973-77 and January-June 1978



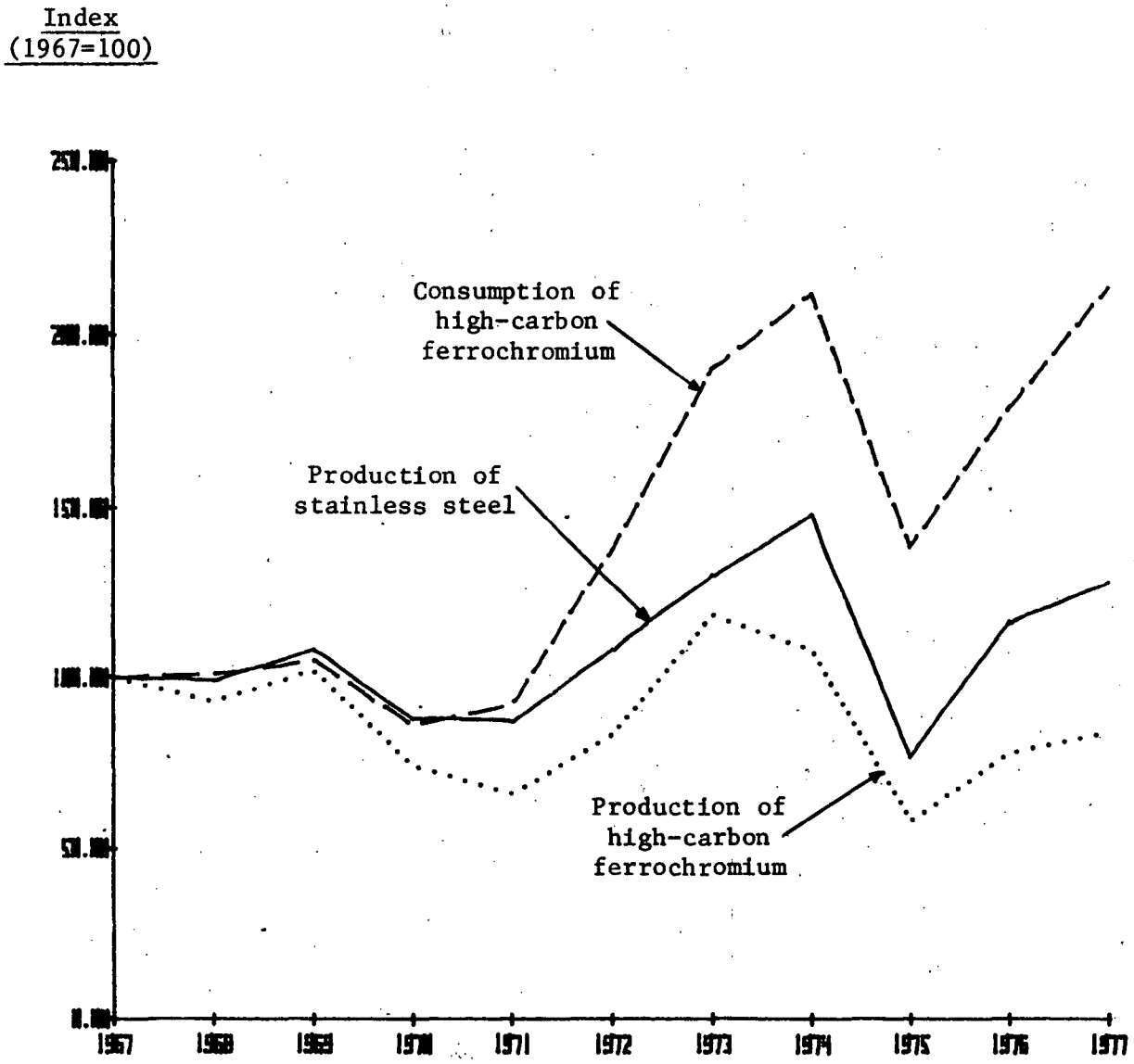
Source: Compiled from official statistics of the U.S. Bureau of Mines.

Figure 9.--Scatter diagram of U.S. production of stainless steel and U.S. consumption of high-carbon ferrochromium, 1967-77.



Source: Compiled from official statistics of the U.S. Bureau of Mines and from the Annual Statistical Report of the American Iron and Steel Institute.

Figure 10.--Indexes of U.S. production and consumption of high-carbon ferrochromium and U.S. production of stainless steel, 1967-77.



Source: Compiled from official statistics of the U.S. Bureau of Mines and from the Annual Statistical Report of the American Iron and Steel Institute.

The amount of stainless steel scrap consumed by stainless steel producers also influences ferrochromium consumption, as shown in the table of indexes below. Stainless steel producers generally use as much scrap as they can obtain in their melt because it is an economical raw-material source. As scrap use per ton of stainless steel production rises, consumption of ferrochromium tends to fall. In periods of high demand for stainless steel, such as 1973 and 1974, scrap is commonly in short supply, and ferrochromium use increases accordingly. About 60 percent of the stainless steel scrap used in the production of stainless steel is known as in-process or home scrap, i.e., it is generated during the production process and recycled.

Indexes of the amount of chromium consumed per ton of stainless steel produced, by chromium sources, and indexes of stainless steel production, 1967-77

(1967=100)

Year	Chromium consumed per ton of stainless steel produced using--				Stainless steel production
	Ferrochromium			Stainless steel scrap	
	High-carbon	Low-carbon	Total		
1967	100	100	100	100	100
1968	100	109	106	103	99
1969	91	102	98	128	108
1970	94	117	108	126	88
1971	106	96	100	129	87
1972	150	77	106	104	108
1973	179	79	118	96	130
1974	185	85	124	94	148
1975	197	51	108	120	77
1976	194	38	99	109	116
1977	226	21	101	99	128

Source: Compiled from official statistics of the U.S. Bureau of Mines and from Annual Statistical Report, 1977, American Iron and Steel Institute.

Operating costs.--U.S. producers of high-carbon ferrochromium have been faced with rapidly rising costs in recent years, and this trend is likely to continue. The two main costs incurred in the production of high-carbon ferrochromium are those for chromium ore (roughly 50 percent of total costs) and electric power (roughly 25 percent of total costs). An indication of the impact of these cost increases can be seen in the indexes presented in the following table.

Indexes of the unit value of imported chromium ore, U.S. producers' cost for electric power, and prices of U.S.-produced high-carbon ferrochromium, 1972-77 and January-June 1978

(1972 = 100)

Period	Unit value of imported chromium ore	U.S. producers' cost per kilowatt-hour for electric power	Prices of U.S.-produced high-carbon ferrochromium 1/
1972	100	100	100
1973	90	105	102
1974	100	171	160
1975	194	217	264
1976	235	235	207
1977	224	273	194
1978 (January-June)	241	331	178

1/ Over 65 percent chromium.

Source: Compiled from official statistics of the U.S. Department of Commerce and from data submitted in response to questionnaires of the U.S. International Trade Commission.

The Foreign Industry

A list of the principal world ferrochromium producers 1/ is presented in appendix G. Worldwide production capacity for high-carbon ferrochromium is estimated to be approximately 1.5 million short tons, chromium content. 2/ This estimated capacity exceeds estimated demand in 1977 by 40 to 50 percent; the excess capacity could be absorbed by increases in stainless steel production in about 10 years assuming no additional increases in high-carbon ferrochromium capacity and an annual growth in demand of 6 percent. Available production data for important producing countries and a brief discussion of the Japanese, South African, and Rhodesian industries follow.

1/ Excluding the U.S.S.R.

2/ Transcript of the hearing, p. 396, investigation No. TA-201-28.

Ferrochromium: Production by principal producing countries, 1974-76

(In thousands of short tons, gross weight)

Country	1974	1975	1976 1/	Ratio of exports to the United States to domestic production in 1976
				Percent
Japan	597	536	511	2
Republic of South Africa	203	239	263	29
U.S.S.R. 2/	203	227	231	0
Rhodesia 2/	200	220	220	18
United States 3/	301	172	193	-
Sweden	111	102	132	0
France 4/	123	62	112	0
Brazil	42	58	72	37
Yugoslavia	43	59	61	35
Italy	44	49	50	2
Finland	53	44	44	0
Norway	34	30	30	4
Spain	24	20	21	0
India	17	11	16	3
Turkey 2/	10	10	10	0
Total 5/	2,045	1,868	1,968	9

1/ Preliminary.
2/ Estimated.
3/ Production of high- and low-carbon ferrochromium.
4/ Includes ferrochromium-silicon.
5/ Does not include known production in the People's Republic of China, North Korea, and Romania for which data are not available. Also does not include some production in other countries which is not specified as to type of ferroalloy.

Source: Compiled from official statistics of the U.S. Bureau of Mines and the U.S. Department of Commerce.

Japan

The Japanese ferrochromium industry is probably the largest in the world, and in addition to domestic operations, all major Japanese producers are involved in smelting overseas. Japan's five leading ferrochromium producers have a 49-percent interest in a Brazilian mining and smelting operation, and there are also Japanese interests in South Africa. Japanese producers appear to export ferrochromium to the United States when the demand for imports is strong (as in 1975) and when satisfactory prices can be obtained (the average unit value per pound of contained chromium for imports of high-carbon ferrochromium from Japan in 1975 was 61 cents, substantially higher than the average of 43 cents per pound for all imports in that year). Because Japan is a major steel-producing country, it is also a major consumer of ferrochromium.

Republic of South Africa

The high-carbon ferrochromium industry in the Republic of South Africa is expanding rapidly as ferrochromium producers (notably from the United States and Japan) move their production facilities to the source of the raw material (by far the largest known chromium resource is in the Bushveld Complex, Transvaal, South Africa). The three-furnace Tubatse plant (a joint venture of Union Carbide Corp. and General Mining of South Africa) in Steelport began operation in December 1976, and has an estimated annual capacity of about 135,000 tons, gross weight, of high-carbon ferrochromium. All of Tubatse's production is for export, and at least one-third of it is expected to be shipped to the United States. 1/ Reckoned on a chromium-content basis comparable with U.S. import figures, this would amount to about 20 percent of the level of U.S. imports in 1977. Another plant, rated at 120,000 tons per year, is being installed at Lydenburg by Johannesburg Consolidated Investment Co., Ltd., with Japanese technical assistance. Together, these two plants are expected to double South Africa's high-carbon ferrochromium production capability between 1976 and 1980, although, as reported by the U.S. Bureau of Mines 2/, "this possibly overly rapid growth in facilities plus a 60 percent increase in electric power costs in the past 2 years (1975-76) continued to raise questions about international competitiveness of South African producers." There are a total of five high-carbon ferrochromium producers in South Africa that together have an estimated annual capacity of about 360,000 tons, chromium content. In 1977, capacity utilization was about 75 percent. 3/ In 1978, South African producers estimate that shipments will be made primarily to the United States (about 34 percent of total shipments), the EEC (25 percent), and Japan (22 percent). 4/

Rhodesia

Rhodesia has the world's second largest reserve of chromium ore and the world's largest reserve of high-quality chromium ore, so future growth of its ferrochromium industry is likely. Although many countries currently do not allow imports from Rhodesia, the three principal high-carbon ferrochromium plants in that country are presumably in operation. Union Carbide Corp. owns one of these plants, but is not permitted to manage or even monitor its operations at the present time. The plant has not, however, been nationalized by the Rhodesian government. 5/

1/ Transcript of the hearing, p. 201.
2/ Preprint from the 1976 Bureau of Mines Minerals Yearbook, p. 16.
3/ Transcript of the hearing, p. 127.
4/ Transcript of the hearing, p. 155.
5/ Transcript of the hearing, p. 203.

APPENDIX A

UNITED STATES INTERNATIONAL TRADE COMMISSION DETERMINATION OF GOOD CAUSE FOR REINVESTIGATION WITHIN 1 YEAR

UNITED STATES INTERNATIONAL TRADE COMMISSION
Washington, D.C.

[TA-201-35]

HIGH-CARBON FERROCHROMIUM

Commission Determination of Good Cause for Reinvestigation within One Year

Background

On December 1, 1977, the United States International Trade Commission determined in investigation No. TA-201-28 conducted pursuant to section 201(b)(1) of the Trade Act of 1974 (Trade Act) that increased imports were a substantial cause of the threat of serious injury to the U.S. high-carbon ferrochromium industry, and recommended relief in the form of increased rates of duty. On January 27, 1978, the President determined that such relief was not in the national economic interest and so notified the Congress. On June 7, 1978, the Ways and Means Committee of the House of Representatives passed a resolution requesting the Commission to conduct a new investigation of high-carbon ferrochromium pursuant to section 201(b)(1) of the Trade Act. The Commission received on June 9, 1978, a letter from the Committee of Producers of High-Carbon Ferrochromium (CPHCF), the petitioner in investigation No. TA-201-28, advising that the current situation in the U.S. high-carbon ferrochromium market reveals the existence of "good cause", within the meaning of section 201(e) of the Trade Act, for the Commission to conduct a reinvestigation of high-carbon ferrochromium within one year.

The question of good cause

Section 201(e) of the Trade Act provides that --

> [e]xcept for good cause determined by the Commission to exist, no investigation for the purposes of this section shall be made with respect to the same subject matter as a previous investigation under this section, unless 1 year has elapsed since the Commission made its report to the President of the results of such previous investigation.

As shown by the following data, significant changes have occurred in the U.S. high-carbon ferrochromium market since the Commission's affirmative finding in investigation No. TA-201-28 in December 1977.

Period	U.S. consumption	U.S. production	U.S. producers' shipments	Imports	Unit value of imports	Ratio of imports to production
	1,000 short tons chromium content	1,000 short tons chromium content	1,000 short tons chromium content	1,000 short tons chromium content	Cents per pound chromium content	Percent
1977:						
Jan.-Mar.	46.1	22.9	30.9	28.7	31.7	125.4
Apr.-June	56.3	34.9	37.0	39.2	31.4	112.2
July-Sept	43.3	26.9	28.5	24.5	33.2	91.0
Oct.-Dec.	44.7	28.2	27.2	17.5	29.6	62.3
1978:						
Jan.-Mar.	53.9	23.5	23.5	59.5	29.8	252.6

Source: Compiled from official statistics of the U.S. Bureau of Mines and the U.S. Department of Commerce.

The CPHCF (whose members accounted for more than 85 percent of total U.S. production in 1977) has provided information on its members' high-carbon ferrochromium operations that indicates deteriorating economic conditions in the domestic industry. Such data for 1976, 1977, and a projection for 1978 based on January-April performance are presented in the following table.

Item	1976	1977	1978 (estimate) 1/
Sales----------million dollars--	$78.5	$77.7	$57.2
Net income (loss) after tax---do-------	$4.0	($0.9)	($6.2)
Average hourly employees----------	410	407	355
Man-hours----------1,000 hours--	845	887	806

1/ Projected on the basis of January-April data.

Source: Committee of Producers of High-Carbon Ferrochromium.

Determination

On the basis of the above information, the Commission has determined that good cause exists, within the meaning of section 201(e) of the Trade Act, for a reinvestigation of high-carbon ferrochromium less than one year from the date the Commission reported to the President the results of its previous investigation of the same subject matter.

Public Inspection

The resolution of the House of Ways and Means Committee and the letter received from the Committee of Producers of High-Carbon Ferrochromium are available for public inspection at the Office of the Secretary, United States International Trade Commission, 701 E Street, NW., Washington, D.C. 20436, and at the New York City Office of the United States International Trade Commission located at 6 World Trade Center.

By order of the Commission:

Kenneth R. Mason
Secretary

Issued: June 22, 1978

APPENDIX B

LETTER FROM THE COMMITTEE OF PRODUCERS OF HIGH-CARBON FERROCHROMIUM

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STEVEN J AGRESTA
GEORGE A. LEMAISTRE
SIMEON M. KRIESBERG

June 8, 1978

The Honorable Daniel Minchew, Chairman
International Trade Commission
701 E Street, N.W.
Washington, D. C. 20436

Dear Chairman Minchew:

As you may know, on June 7, 1978, the Committee on Ways and Means of the House of Representatives, acting pursuant to Section 201(b)(1) of the Trade Act of 1974, approved a resolution to request the Commission promptly to conduct a new, expedited Section 201 "escape clause" investigation into imports of high carbon ferrochromium ("HCF"). This action confirms the favorable recommendation to this effect by the House Subcommittee on Trade.

As soon as the Ways and Means Committee communicates this request to you (if it has not already done so), I trust that the Commission will find "good cause" to exist under Section 201(e) for conducting this new investigation -- for reasons including those set forth in this letter. Likewise, we request that the Commission accede to the Ways and Means Committee's request and report its determination to the President within ninety days of the Committee's approval of the resolution.

As you know from the Commission's earlier investigation, this firm is counsel to the Committee of Producers of High Carbon Ferrochromium (the "HCF Committee"). The HCF Committee represents most of the American producers of HCF. It initiated the escape clause action which resulted in the Commission's positive finding and recommendation of tariff relief to the President of December 1, 1977

(TA-201-28). Because the President refused to order any relief in January of this year, and because of substantial new facts that have occurred since last fall, and were thus not before the Commission, the HCF Committee (together with one of its opponents before the Commission, the Brazilian HCF industry) asked the Ways and Means Committee to adopt the resolution requesting a new Commission investigation.

Section 201(e) of the Trade Act authorizes the Commission to conduct at this time the investigation which the Ways and Means Committee has requested if it finds "good cause" to exist. We respectfully submit that "good cause" clearly exists in this case, for the reasons set forth below.

Briefly, since the Commission's earlier decision, the industry's economic condition has badly deteriorated; imports from South Africa have soared; the Brazilian HCF industry now supports appropriate import relief; and the Congress has unequivocally expressed its interest. And, if the Commission now recommends a quota (rather than a tariff increase) to the President, the combination of critically changed circumstances and a different remedy recommendation could well then cause the Administration's decision to be a positive one.

The domestic HCF industry had a strong case in December, when the Commission found that the industry faced the threat of serious injury and voted to recommend import relief. Since December, an amazing surge in South African imports has caused that threat to be more than realized, causing injury to the American industry even more severe than that which then existed or was predicted. For example, in the last two quarters (October 1977 - March 1978), the member producers of the HCF Committee lost over $2.5 million on their HCF operations -- this at a time of high demand for HCF. The direct cause of these losses is the predatory pricing of the South African producers.

In December it was evident that without relief the domestic HCF industry would be driven out of business; today, it is clear that the industry <u>is being</u> driven out of business. Its situation is grave indeed. Without effective relief, the American steel industry will soon have no American suppliers of HCF and will be at the mercy of a cartel consisting of a handful of South African producers.

If the American HCF industry is to survive, an immediate, expedited reinvestigation by the Commission, as requested by the Ways and Means Committee, is essential.

* * *

As noted, Section 201(e) of the Trade Act of 1974 authorizes the Commission to conduct an escape clause investigation prior to expiration of a year from the time of a previous report when it finds that "good cause" exists. The Reports of both the House Ways and Means Committee and the Senate Finance Committee relating to that Act indicate that the Commission may find "good cause" to reopen an investigation when there is "sufficient new evidence." On several prior occasions -- for example, in the investigations of the mushroom and footwear industries -- the Commission has so determined.

The HCF Committee believes that there clearly is sufficient new evidence of changed circumstances in this case to warrant reconsideration -- even absent the expressed interest of the Ways and Means Committee. This evidence consists of: (1) a significant increase in the volume of HCF imports; (2) considerably more desperate economic conditions in the domestic HCF industry; and (3) a change in stance as to need for relief by a major foreign HCF producer.

1. Significant Increase in the Volume of HCF Imports

Import penetration has surged menacingly, even from the dangerous high levels of recent years which were before the Commission last fall. Contrary to previous patterns, however, since late 1977, the vast bulk of imported HCF has come from a single country: South Africa.

In its prior testimony and briefs, the HCF Committee warned that a recent, massive increase in South African HCF capacity represented an awesome and dangerous threat to the survival of the domestic industry. The Commission found that the domestic industry did indeed face a threat of serious injury. That threat was caused largely by the added South African capacity and was evidenced by destructive predatory pricing that, for example, manifested itself in a major South African price decrease the same week the Commission held its hearings on this matter in October.

The Commission's analysis was correct. And, since its report in the late fall, the threat has been realized and constitutes present serious injury as well; the additional South African capacity is now inundating the American market with its output. The degree of this unprecedented growth in the imports from just one country is demonstrated in depth by the data on imports contained in Exhibits A and B, attached hereto. These dire circumstances are vividly illustrated by a few comparisons:

-- Between 1972 and 1977, South African HCF manufacturers annually supplied between 18,000 tons and 57,000 tons to the American market; during the first four months of 1978 alone, South Africa has already brought in almost 54,000 tons.

-- Between 1972 and 1977, South Africa supplied between one-eighth and one-third of the HCF consumed in the United States; in 1978, at a time when HCF inventories were abnormally swollen by imports, South Africa by itself has brought in enough HCF to satisfy four-fifths of the entire domestic demand.

-- Between 1972 and 1977, the sources of HCF imports were generally geographically diverse; in 1978 to date, South Africa is the source of over 85 percent of all HCF imports to this country.

In sum, import penetration during the first four months of 1978 was overwhelming, reaching nearly 95 percent of estimated consumption and leaving essentially no room for a domestic industry. All of this has occurred while there are vast stocks of inventoried material which the high level of imports since 1975 has caused to overhang this battered market, and which the Commission found to be an important element in the import problems confronting the U.S. industry. The historical growth trend in the import sector -- already dangerous in 1977 and earlier -- has taken a quantum leap forward; and, South African producers have captured the vast portion of the American market through predatory pricing.

Only immediate relief putting reasonable restraints upon the massive level of these imports will preserve a viable domestic HCF industry.

2. Rapidly Deteriorating Economic Conditions In The Domestic HCF Industry

As the South African producers take over the United States HCF market, domestic producers and workers have paid and are paying the price. In 1977, the domestic industry suffered severe declining trends in its performance. Since the Commission ended its investigation in December, however, this decline has turned into a disaster. The depths of the domestic industry's problems are shown by the aggregate data from HCF Committee members contained in Exhibit C, which is attached hereto. In particular:

-- These producers' sales, which leveled at approximately $78,000,000 in 1976 and 1977, are currently running at an annual level of approximately $57,000,000 (based on data from January through April). This represents a decline of 26 percent in just a few months -- a decline which has taken place in a period of strong demand.

-- These producers' net annual after-tax income, which was at the depressed level of $4,000,000 or five percent of sales in 1976, turned into a loss of $861,000 in 1977. Even worse, the producers lost a total of over $3,400,000 in the most recent seven months (from October of 1977 through April of this year). Losses for 1978 are running at a level over seven times the level of losses during all of 1977. If present trends continue, the losses will reach the ominous aggregate of $6,250,000 for 1978, or almost 11 percent of sales.

-- Inventories, which grew fourfold between 1974 and 1977, have continued to increase in 1978 and to depress the market for this material.

-- Despite increased costs of production, prices have been dropping in response to the predatory pricing of the South African producers. These prices are substantially below 1975 levels, despite an increase of over 30 percent in the cost of living index since then. Based on South African pricing in the other major HCF markets, (the EEC and Japan), the HCF Committee believes that the South Africans would drop their United States price even further were this matter not pending first with the Congress and now with the Commission.

-- These producers' production and employment levels have fallen.

The cause of this distressing picture is clear: the level of and pricing of South African imports. All of the HCF producers -- including Airco -- have sustained substantial losses in the last seven months (through April). What the Commission majority found to be a threat of serious injury last fall has become a deadly reality. The domestic industry is facing strangulation by the South African producers. Without relief, the domestic industry will be forced to abandon the arena to the South Africans.

3. Change in Stance by a Major Foreign HCF Producer

The domestic producers are not alone in opposing the South African import tide. The Brazilian industry, a major third world producer, has in recent years become a significant supplier of HCF to the United States market. It supplied 15,000 tons (14 percent of the import total) in 1976 and was selling at similar levels in 1977 before the South Africans' price-cutting took its toll. But, the Brazilians have ceased importing HCF into the United States; and, during the first four months of 1978 were out of the market completely.

Imports from Brazil have been nonexistent because Brazil, like the American producers, cannot match the predatory prices set by the South Africans. As a result, the Brazilian industry, which opposed import relief at the time of the ITC hearings in the fall of 1977, now supports the domestic industry's request for a reopening of the investigation and for relief in the form of an orderly marketing agreement or a quota.

* * *

Should the Commission find that increased HCF imports are now a substantial cause of serious injury to the domestic industry (in addition to being a continuing threat of serious injury), the HCF Committee would expect to ask the President to decide, on the basis of the new information, to impose a quota or to negotiate an orderly marketing agreement with South Africa. Because of the advantages of a quota or OMA, the HCF Committee will ask the Commission to recommend quota relief to the President. That quota recommendation could then be the basis of a Presidentially directed OMA.

An OMA is particularly appropriate in this case because it would provide a workable remedy to the critical problem confronting the domestic industry and other historical exporters to this country without compromising foreign trade policy objectives. Nor would such relief be inflationary -- in fact, it would be anti-inflationary, because without it the South Africans ultimately will gain market domination that will permit them to raise HCF prices to whatever level they choose.

Moreover, given the massive level of South African imports this year, a tariff increase has much less appeal than it did some months ago. Whereas a quota or OMA can, in appropriate circumstances such as these, reach back to the beginning of 1978 and "count" those imports, a tariff increase could not be retroactive. New tariff relief would be akin to locking the barn door after the horse has gone.

* * *

The situation has become critical. Without relief, the United States HCF market -- i.e., the stainless steel industry -- will soon find itself under the thumb of a foreign cartel, consisting of four or five producers in a single unreliable and not necessarily friendly nation -- South Africa. As our antitrust and trade laws recognize, when a cartel is being developed, only governmental action to frustrate the cartel can maintain an open market and genuinely free trade. Without import relief, the supply of HCF -- essential to the manufacture of stainless steel and therefore critical to our national security -- will be controlled by a South African cartel.

* * *

One other request. Most of the principal participants in the prior HCF investigation, including counsel to all parties of record as well as The Ferroalloys Association (to which all the HCF Committee members belong), are located in Washington, D. C. And Washington is at least as convenient as Pittsburgh (the site of the HCF hearing last October) for all the domestic producers themselves. On behalf of our client,

the Committee of Producers of High Carbon Ferrochromium, as well as ourselves, their counsel, we respectfully request that any hearing in this matter be held in Washington, D. C.

Respectfully submitted,

COMMITTEE OF PRODUCERS OF HIGH CARBON FERROCHROMIUM

By _____
Thomas M. Lemberg, Counsel

cc: All parties of record in TA-201-28.

IMPORTS OF HIGH CARBON FERROCHROMIUM
(All Data in Tons of Contained Chromium)

	1970	1971	1972	1973	1974	1975	1976	1977	1978*
South African Imports	622 (est.)	4,068 (est.)	18,377	23,451	24,512	41,101	41,381	56,806	161,415
U. S. Consumption	76,700	81,700	122,521	168,539	188,728	123,772	155,800	190,218	200,000
South African Imports as % of Consumption	0.8%	5.0%	15.0%	13.9%	13.0%	33.2%	26.6%	29.8%	80.7%
South African as % of all Imports	8.2%	15.1%	41.7%	32.6%	34.4%	26.0%	38.6%	51.7%	86.0%

* Annualized from import data for the first four months of 1978 (all that is presently available). Consumption for 1978 has been estimated on the basis of industry expectations.

HCF IMPORTS (TONS OF CONTAINED CHROMIUM)

First Quarter of 1978

Country*	4 Month Total	Annualized
South Africa	53,805	161,415
Yugoslavia	6,287	18,861
Sweden	2,096	6,288
Norway	228	684
West Germany	75	225
Japan	44	132
Brazil	---	---
Totals	62,535	187,605

* None of the members of the HCF Committee has any affiliation with producers which have imported HCF into the U.S. in 1978.

Exhibit C

COMMITTEE OF PRODUCERS OF HIGH CARBON FERROCHROMIUM

(Airco, Inc.; Chromium Mining & Smelting Corporation and Globe Metallurgical Division of Interlake, Inc.)

Consolidated Data on 1977-78 Operations

	1977 Total Year	1977 1st Q.	1977 2nd Q.	1977 3rd Q.	1977 4th Q.	1978 (Jan.-April)
Sales ($000)	$ 77,677	$ 19,911	$ 21,853	$ 19,088	$ 16,825	$ 19,076
Net Income (loss) after tax ($000)	$ (861)	$ (84)	$ 424	$ 152	$ (1,353)	$ (2,083)
Production (tons of contained chromium)	98,065	20,966	29,337	26,770	20,992	30,525
Average hourly employees	407	411	439	411	369	355
Manhours	887,000	211,000	224,000	238,000	214,000	268,652

Consolidated Data on HCF Operations: 1976-1978

	1978 (annualized from January-April data)	1977	1976
Sales ($000)	$ 57,228	$ 77,677	$ 78,509
Net Income (loss) after tax ($000)	$ (6,249)	$ (861)	$ 4,000
Production (tons of contained chromium)	91,575	98,065	97,097
Average hourly employees	355	407	410
Manhours	806,000	887,000	845,000

APPENDIX C

LETTER AND RESOLUTION OF THE COMMITTEE ON WAYS AND MEANS

COMMITTEE ON WAYS AND MEANS
U.S. HOUSE OF REPRESENTATIVES
WASHINGTON, D.C. 20515

TELEPHONE (202) 225-3625

June 7, 1978

Honorable Daniel Minchew
Chairman
U.S. International Trade Commission
701 E Street, N. W.
Washington, D.C. 20436

Dear Mr. Chairman:

On March 22, 1978, the Subcommittee on Trade held a hearing on H.Con.Res. 469, a resolution to override the President's January 27th decision not to provide import relief as recommended by the United States International Trade Commission to the domestic high-carbon ferrochromium industry. During the hearing, the Subcommittee was informed of recent import data, not available to the President at the time of his decision, that high-carbon ferrochromium imports for January and February of 1978 amounted to nearly half the total imports for all of 1977.

In light of these circumstances, the Subcommittee deferred action on H.Con.Res. 469 and recommended that the full Committee approve a resolution requesting the International Trade Commission to initiate a new investigation of imports of high-carbon ferrochromium under section 201 of the Trade Act of 1974.

Therefore, the Committee on Ways and Means approved on June 7 the enclosed resolution requesting the Commission to make such an investigation. It is recognized that this request is subject to the provision of section 201(e) of the Trade Act of 1974 and for that purpose the Committee requests the Commission to determine whether good cause exists for making a new investigation of this subject matter on an expedited basis.

The Commission's immediate consideration of the above request will be very much appreciated.

Sincerely yours,

Al Ullman
Chairman

AU/FSb

RESOLUTION

Resolved, that

(a) Pursuant to section 201(b)(1) of the Trade Act of 1974, the United States International Trade Commission shall promptly make an investigation to determine whether ferrochromium, containing over 3 percent by weight of carbon, is being imported into the United States in such increased quantities as to be a substantial cause of serious injury, or threat thereof, to the domestic industry producing an article like or directly competitive with the imported article. For purposes of this resolution, the term "ferrochromium, containing over 3 percent by weight of carbon" means articles classified under item 607.31 of the Tariff Schedules of the United States (19 U.S.C. 1202).

(b) The Commission shall conclude its new investigation and report its determinations to the President by no later than ninety calendar days from the date of this resolution.

APPENDIX D

UNITED STATES INTERNATIONAL TRADE COMMISSION
NOTICE OF INVESTIGATION AND HEARING

UNITED STATES INTERNATIONAL TRADE COMMISSION
Washington, D.C.

[TA-201-35]

HIGH-CARBON FERROCHROMIUM

Notice of Investigation and Hearing

Investigation instituted. Following receipt on June 12, 1978, of a resolution of the Committee on Ways and Means of the House of Representatives for an investigation pursuant to section 201(b)(1) of the Trade Act of 1974 (Trade Act), the United States International Trade Commission on June 21, 1978, having determined good cause to exist within the meaning of section 201(e) of the Trade Act for a reinvestigation within 1 year, instituted such an investigation to determine whether high-carbon ferrochromium, provided for in item 607.31 of the Tariff Schedules of the United States, is being imported into the United States in such increased quantities as to be a substantial cause of serious injury, or the threat thereof, to the domestic industry producing an article like or directly competitive with the imported article.

Investigation to be expedited. It is the intention of the Commission to expedite its investigation in this matter and to submit its report to the President by September 5, 1978, as requested by the Committee on Ways and Means.

Hearing and prehearing conference. A public hearing in connection with this investigation will be held in Washington, D.C., at 10:00 a.m., e.d.t., on Tuesday, August 8, 1978, in the Hearing Room, United States International Trade Commission Building, 701 E Street, NW. All persons shall have the right to appear by counsel or in person, to present evidence, and to be heard. Requests to appear at the hearing should be filed with the Secretary of the Commission, in writing, at his office in Washington, D.C. not later than noon, Thursday, August 3, 1978.

There will be a prehearing conference in connection with this investigation which will be held in Washington, D.C. at 10:00 a.m., e.d.t., on Thursday, August 3, 1978, in Room 117, U.S. International Trade Commission Building, 701 E Street, NW.

Kenneth R. Mason
Secretary

Issued: June 22, 1978

APPENDIX E

UNITED STATES INTERNATIONAL TRADE COMMISSION DETERMINATIONS, FINDINGS, AND RECOMMENDATIONS IN INVESTIGATION NO. TA-201-28

DETERMINATIONS, FINDINGS, AND RECOMMENDATIONS OF THE COMMISSION

On the basis of its investigation, the Commission determines 1/ that ferrochromium, containing over 3 percent by weight of carbon, provided for in item 607.31 of the Tariff Schedules of the United States, is being imported into the United States in such increased quantities as to be a substantial cause of the threat of serious injury to the domestic industry producing an article like or directly competitive with the imported article.

Findings and recommendations

Commissioners Minchew, 2/ Moore, and Bedell find and recommend that--

The imposition of rates of duty as follows, in addition to the existing column 1 rate of duty, is necessary to prevent the threatened serious injury:

Ferrochromium, containing over 3 percent by weight of carbon, classifiable under item 607.31 of the TSUS:

1st year	2d year	3d year	4th year	5th year
30% ad val.	30% ad val.	25% ad val.	20% ad val.	20% ad val.

Commissioner Ablondi finds and recommends that--

The imposition of rates of duty as follows, in addition to the existing column 1 rate of duty, is necessary to prevent the threatened serious injury:

Ferrochromium, containing over 3 percent by weight of carbon, classifiable under item 607.31 of the TSUS:

1st year	2d year	3d year
8% ad val.	8% ad val.	8% ad val.

1/ Commissioners Moore, Bedell, and Ablondi determine in the affirmative, Commissioner Minchew determines in the negative, and Commissioners Parker and Alberger did not participate.

2/ Commissioner Minchew, noting that the Commission has made an affirmative determination, has made a recommendation of remedy.

APPENDIX F

STATISTICAL TABLES

Table 1.--High-carbon ferrochromium: U.S. imports for consumption, by principal sources, 1973-77, January-June 1977, and January-June 1978

Source	1973	1974	1975	1976	1977	January-June-- 1977	January-June-- 1978
	Quantity (short tons, chromium content)						
Republic of South Africa	23,451	24,512	41,101	41,381	56,807	27,069	68,162
Rhodesia	32,167	19,958	51,832	26,561	27,036	24,016	0
Yugoslavia	2,149	13,877	8,073	14,193	15,254	10,345	13,564
Brazil	4,160	5,974	8,885	15,459	6,072	3,253	0
Japan 2/	298	997	42,102	6,045	176	67	68
All other	9,692	6,001	6,063	3,669	4,502	3,104	2,713
Total	71,916	71,319	158,055	107,307	109,847	67,854	84,508
	Value (1,000 dollars)						
Republic of South Africa	6,448	9,040	29,219	26,650	35,578	17,296	39,088
Rhodesia	8,042	6,520	33,160	15,131	16,109	14,251	0
Yugoslavia	802	10,877	9,219	10,021	10,762	7,320	9,301
Brazil	1,012	2,641	6,651	10,126	3,706	1,962	0
Japan	119	1,067	51,380	5,098	163	55	69
All other	2,436	2,988	5,410	3,006	3,598	2,383	1,913
Total	18,859	33,134	135,041	70,035	69,916	43,266	50,371
	Unit value (cents per pound, chromium content) 1/						
Republic of South Africa	14	18	36	32	31	32	29
Rhodesia	12	16	32	28	30	30	-
Yugoslavia	19	39	57	35	35	35	34
Brazil	12	22	37	33	30	30	-
Japan	20	54	61	42	46	41	50
All other	13	25	45	41	40	38	35
Average	13	23	43	33	32	32	30
	Percent of total quantity 1/						
Republic of South Africa	32.6	34.4	26.0	38.6	51.7	39.9	80.7
Rhodesia	44.7	28.0	32.8	24.8	24.6	35.4	0
Yugoslavia	3.0	19.5	5.1	13.2	13.9	15.2	16.0
Brazil	5.8	8.4	5.6	14.4	5.5	4.8	0
Japan	0.4	1.4	26.6	5.6	0.2	0.1	0.1
All other	13.5	8.4	3.8	3.4	4.1	4.6	3.2
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

1/ Calculated from the unrounded figures.

2/ Japan was not the fifth largest source of imported high-carbon ferrochromium in 1977, but is included in the table because of it's prominance in 1975.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Note.--Because of rounding, figures may not add to the totals shown.

Table 2.--Low-carbon ferrochromium: U.S. imports for consumption, by principal sources, 1973-77, January-June 1977, and January-June 1978

Source	1973	1974	1975	1976	1977	January-June--	
						1977	1978
	Quantity (short tons, chromium content)						
Rhodesia	4,506	3,514	3,714	5,785	6,692	6,691	0
Japan	9,053	4,602	11,816	19,360	5,136	3,441	1,107
Republic of South Africa	9,796	12,430	14,511	6,829	4,187	3,994	64
Sweden	4,553	2,653	2,169	2,217	3,527	2,642	2,038
Norway	2,163	2,037	1,585	1,974	2,561	1,072	915
All other	2,719	5,527	6,139	6,795	2,261	939	2,419
Total	32,790	30,763	39,933	42,961	24,363	18,782	6,543
	Value (1,000 dollars)						
Rhodesia	2,508	2,258	5,369	8,098	7,496	7,496	0
Japan	5,094	4,162	23,410	23,582	6,738	4,633	1,333
Republic of South Africa	4,936	7,692	11,002	8,168	4,513	4,340	58
Sweden	2,798	2,437	4,039	3,470	5,322	3,914	2,624
Norway	1,260	1,710	2,459	2,414	3,348	1,397	1,110
All other	1,744	4,531	9,311	9,051	3,196	1,380	2,940
Total	18,340	22,790	55,589	54,784	30,612	23,160	8,064
	Unit value (cents per pound, chromium content) 1/						
Rhodesia	28	32	72	70	56	56	-
Japan	28	45	99	61	66	67	60
Republic of South Africa	25	31	38	60	54	54	45
Sweden	31	46	93	78	75	74	64
Norway	29	42	78	61	65	65	61
All other	32	41	76	67	71	74	61
Total	28	37	70	64	63	62	62
	Percent of total quantity						
Rhodesia	13.7	11.4	9.3	13.5	27.5	35.6	0
Japan	27.6	15.0	29.6	45.1	21.1	18.3	16.9
Republic of South Africa	29.9	40.4	36.3	15.9	17.2	21.3	1.0
Sweden	13.9	8.6	5.4	5.2	14.5	14.1	31.2
Norway	6.6	6.6	4.0	4.6	10.5	5.7	14.0
All other	8.3	18.0	15.4	15.8	9.3	5.0	37.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

1/ Calculated from the unrounded figures.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Note.--Because of rounding, figures may not add the totals shown.

Table 3.--Ferrochromium: U.S. production, by types and by quarters, January 1973-June 1978

(In short tons, chromium content)

Period	High-carbon ferro-chromium	Low-carbon ferro-chromium	Total
1973:			
January-March	38,688	13,617	52,305
April-June	40,164	17,125	57,289
July-September	43,569	12,092	55,661
October-December	42,892	17,608	60,500
Total	158,550	60,917	219,467
1974:			
January-March	34,919	15,721	50,640
April-June	37,262	16,560	53,822
July-September	37,428	13,345	50,773
October-December	37,379	15,096	52,475
Total	144,910	60,706	205,616
1975:			
January-March	34,828	15,320	50,148
April-June	19,783	10,579	30,362
July-September	13,594	9,151	22,745
October-December	9,243	2,475	11,718
Total	78,071	37,875	115,946
1976:			
January-March	24,457	3,121	27,578
April-June	27,697	6,350	34,047
July-September	36,465	6,635	43,100
October-December	18,826	3,580	22,406
Total	105,237	19,686	124,923
1977:			
January-March	22,869	2,167	25,036
April-June	34,905	4,146	39,051
July-September	26,860	5,222	32,082
October-December	28,169	4,382	32,551
Total	112,803	15,917	128,720
1978:			
January-March	23,542	2,321	25,863
April-June	24,224	5,616	29,840

Source: Compiled from official statistics of the U.S. Bureau of Mines.

Note.--Because of revisions in annual data, quarterly figures may not add to the totals shown.

Table 4.--Ferrochromium: U.S. producers' shipments, by types and by quarters, January 1973-June 1978

(In short tons, chromium content)

Period	High-carbon ferro-chromium	Low-carbon ferro-chromium	Total
1973:			
January-March	44,669	19,643	64,312
April-June	45,481	20,094	65,575
July-September	44,224	14,417	58,641
October-December	44,781	18,824	63,605
Total	170,573	72,514	243,087
1974:			
January-March	39,980	17,985	57,965
April-June	42,854	15,995	58,849
July-September	38,170	15,461	53,631
October-December	38,797	16,063	54,860
Total	154,415	65,135	219,550
1975:			
January-March	32,811	14,005	46,816
April-June	13,784	9,176	22,960
July-September	16,407	4,550	20,957
October-December	13,774	5,181	18,955
Total	78,412	32,986	111,398
1976:			
January-March	23,301	6,350	29,651
April-June	28,924	6,350	35,274
July-September	31,498	5,076	36,574
October-December	28,341	4,192	32,533
Total	106,165	22,171	128,336
1977:			
January-March	30,852	4,195	35,047
April-June	37,048	4,859	41,907
July-September	28,342	3,701	32,043
October-December	26,752	2,462	29,214
Total	122,994	15,217	138,211
1978:			
January-March	23,263	4,055	27,318
April-June	29,153	4,202	33,355

Source: Estimated from gross weight on the basis of average chromium content of production as reported by the U.S. Bureau of Mines.

Note.--Because of revisions in annual data, quarterly figures may not add to the totals shown.

Table 5.--Ferrochromium: U.S. producers', consumers', and importers' inventories, by types and by quarters, March 31, 1973-June 30, 1978

(In short tons, chromium content)

Date	High-carbon ferrochromium inventories				Low-carbon ferrochromium inventories			
	Producers'	Consumers'	Importers'	Total	Producers'	Consumers'	Importers'	Total
1973:								
March 31	24,977	8,306	6,412	39,695	12,942	7,767	13,329	34,038
June 30	17,884	12,099	5,819	35,802	10,087	9,459	14,483	34,029
September 30	15,903	12,796	7,601	36,300	6,966	11,524	13,906	32,396
December 31	13,518	15,642	5,764	34,924	5,809	10,608	14,232	30,649
1974:								
March 31	11,095	14,454	7,432	32,981	4,677	14,244	9,150	28,071
June 30	5,460	13,743	5,952	25,155	5,297	11,486	9,123	25,906
September 30	6,794	15,190	5,922	27,906	2,962	12,564	5,950	21,476
December 31	8,957	16,225	9,972	35,154	2,441	9,995	5,447	17,883
1975:								
March 31	13,339	28,429	19,167	60,935	4,727	10,590	6,563	21,880
June 30	22,374	31,473	29,950	83,797	7,569	12,111	10,837	30,517
September 30	30,001	27,262	38,139	95,402	12,137	9,722	11,972	33,831
December 31	31,022	32,967	48,518	112,507	9,187	6,845	15,645	31,677
1976:								
March 31	37,336	30,888	47,038	115,262	5,624	7,846	16,715	30,185
June 30	39,817	31,399	43,539	114,755	6,930	6,357	14,939	28,226
September 30	51,078	32,436	54,502	138,016	8,434	7,677	18,591	34,702
December 31	40,964	33,459	49,594	124,017	7,634	5,967	19,431	33,032
1977:								
March 31	32,907	37,565	52,568	123,040	5,855	5,718	15,640	27,213
June 30	30,721	30,929	63,505	125,155	5,751	3,992	19,946	29,689
September 30	27,678	35,353	60,493	123,524	7,752	3,819	20,601	32,172
December 31	24,889	39,635	48,881	113,405	8,254	3,312	17,645	29,211
1978:								
March 31	31,194	43,844	79,220	154,258	6,477	3,869	14,597	24,943
June 30	25,449	40,619	52,515	118,583	8,482	3,882	10,615	22,979

Source: Producers' and consumers' inventories estimated from gross weight based upon average chromium content of production as reported by the U.S. Bureau of Mines; importers' inventories compiled from data submitted in response to questionnaires of the U.S. International Trade Commission.

Table 6.--Ferrochromium: U.S. exports, 1973-77, January-June 1977, and January-June 1978

Item	1973	1974	1975	1976	1977	January-June--	
						1977	1978
	Quantity (short tons, chromium content)						
High-carbon ferrochromium	15,189	4,228	3,467	6,354	4,179	1,119	2,928
Low-carbon ferrochromium	1,510	983	2,216	510	405	43	297
Total	16,699	5,211	5,683	6,864	4,584	1,164	3,225
	Value (1,000 dollars)						
High-carbon ferrochromium	5,906	2,300	3,729	5,144	3,451	1,034	2,193
Low-carbon ferrochromium	958	971	3,743	955	650	83	385
Total	6,864	3,271	7,472	6,099	4,101	1,117	2,578
	Unit value (cents per pound, chromium content)						
High-carbon ferrochromium	19	27	54	40	41	46	37
Low-carbon ferrochromium	32	49	84	94	80	92	65
Total	21	31	66	44	45	48	40

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

Table 7.--Average number of persons employed in U.S. establishments in which ferrochromium was produced, total and production and related workers, by quarters, January 1973-June 1978

Period	All employees producing--			Production and related workers producing--		
	All products	High-carbon ferrochromium	Low-carbon ferrochromium	All products	High-carbon ferrochromium	Low-carbon ferrochromium
1973:						
January-March	4,622	749	713	3,865	674	621
April-June	4,671	788	775	3,919	680	670
July-September	4,854	772	561	4,102	680	499
October-December	4,807	789	847	4,060	693	730
Average	4,738	774	724	3,986	682	630
1974:						
January-March	4,741	771	680	3,991	675	565
April-June	4,878	788	766	4,102	686	629
July-September	4,969	731	734	4,191	643	609
October-December	4,933	788	806	4,158	692	667
Average	4,880	770	746	4,110	674	618
1975:						
January-March	4,854	841	729	4,049	735	599
April-June	4,545	615	619	3,730	525	499
July-September	3,909	338	474	3,092	281	370
October-December	3,545	357	158	2,743	297	114
Average	4,213	538	495	3,404	460	396
1976:						
January-March	3,831	564	203	3,021	464	149
April-June	4,213	585	415	3,396	484	323
July-September	4,331	722	322	3,535	608	258
October-December	3,996	530	220	3,201	454	167
Average	4,093	600	290	3,288	502	224
1977:						
January-March	3,806	523	140	2,969	414	104
April-June	3,946	660	197	3,124	526	151
July-September	1/ 3,061	615	291	1/ 2,541	508	237
October-December	1/ 2,699	575	204	1/ 2,202	461	163
Average	1/	593	208	1/	477	164
1978:						
January-March	1/ 2,656	477	156	1/ 2,179	379	135
April-June	1/ 2,920	516	112	1/ 2,447	413	96

1/ Not comparable with data for earlier periods because * * *.

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

Table 8.--Man-hours worked by production and related workers in the manufacuture of ferrochromium, by quarters, January 1973-June 1978

(In thousands of man-hours)

Period	Production and related workers producing--		
	All products	High-carbon ferrochromium	Low-carbon ferrochromium
1973:			
January-March	1,927	351	320
April-June	1,902	352	299
July-September	1,988	357	247
October-December	2,022	364	365
Total	7,839	1,424	1,231
1974:			
January-March	2,017	357	276
April-June	1,984	354	291
July-September	2,016	333	281
October-December	2,086	361	317
Total	8,103	1,405	1,165
1975:			
January-March	2,062	383	300
April-June	1,779	261	251
July-September	1,561	139	185
October-December	1,380	147	54
Total	6,782	930	790
1976:			
January-March	1,487	239	68
April-June	1,696	246	163
July-September	1,710	313	132
October-December	1,538	238	74
Total	6,431	1,036	437
1977:			
January-March	1,599	231	55
April-June	1,676	289	80
July-September	1/ 1,309	282	90
October-December	1/ 1,141	233	85
Total	1/	1,035	310
1978:			
January-March	1/ 1,155	215	70
April-June	1/ 1,284	240	50

1/ Not comparable with data for earlier periods because * * *.

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

Table 9.--Average hourly and weekly earnings of U.S. production workers engaged in the manufacture of durable goods, primary metals, and blast furnace and basic steel products, annual 1973-77 and June 1978

Period	Average hourly earnings			Average weekly earnings		
	Durable goods	Primary metals	Basic steel products	Durable goods	Primary metals	Basic steel products
Annual:						
1973	$4.32	$5.03	$5.44	$179.28	$213.27	$227.39
1974	4.68	5.60	6.25	190.48	233.52	258.75
1975	5.14	6.17	6.95	205.09	246.80	273.14
1976	5.55	6.80	7.68	225.33	276.08	307.20
1977	6.02	7.45	8.45	246.22	306.20	341.38
June 1978	6.47	8.14	9.25	267.21	343.51	386.65
Average annual growth:						
1973-77--------percent--	8.6	10.3	11.6	8.3	9.5	10.7
1976-77----------do----	8.5	9.6	10.0	9.3	10.9	11.1

Source: Compiled from official statistics of the U.S. Bureau of Labor Statistics.

Table 10.--Real hourly and weekly earnings 1/ of U.S. production workers engaged in the manufacture of durable goods, primary metals, and blast furnace and basic steel products, annual 1973-77 and June 1978

(In 1967 dollars)

Period	Real hourly earnings			Real weekly earnings		
	Durable goods	Primary metals	Basic steel products	Durable goods	Primary metals	Basic steel products
Annual:						
1973	$3.24	$3.78	$4.09	$134.64	$160.17	$170.77
1974	3.17	3.79	4.23	128.95	158.09	175.17
1975	3.19	3.83	4.31	127.16	153.02	169.35
1976	3.26	3.99	4.51	132.27	162.06	180.33
1977	3.32	4.10	4.66	135.67	168.72	188.10
June 1978	3.31	4.17	4.74	136.82	175.89	197.98
Average annual growth:						
1973-77--------percent--	.6	2.1	3.3	.2	1.3	2.4
1976-77----------do----	1.8	2.8	3.3	2.6	4.1	4.3

1/ Earnings are deflated by the Consumer Price Index (1967=100) to show effect of price changes.

Source: Compiled from official statistics of the U.S. Bureau of Labor Statistics.

Table 11.--High-carbon ferrochromium: Ranges of lowest net prices for the imported and U.S.-produced products, by chromium specifications and by quarters, January 1973-June 1978

(Cents per pound)

Period	Over 65 percent chromium		58-64 percent chromium		52-55 percent chromium	
	Imported	U.S.-produced	Imported	U.S.-produced	Imported	U.S.-produced
1973:						
January-March	16-22	13-19	15-19	24	14-19	16
April-June	16-22	13-20	18-20	24	15-19	18
July-September	16-23	16-23	1/	25-27	15-19	20
October-December	20-25	16-23	21	25	15-20	20
1974:						
January-March	20-55	12-23	30	25	15-21	20
April-June	18-65	19-28	1/	41	15-53	27
July-September	28-89	25-35	29-90	43	18-29	31
October-December	36-95	25-40	30-90	46	18-35	36
1975:						
January-March	53-95	32-53	55-100	59	25-74	49
April-June	45-78	30-57	52-90	59	25-54	49
July-September	45-82	32-57	32-90	59	25-52	49
October-December	38-82	40-56	32-90	59	25-45	49
1976:						
January-March	35-50	21-45	34-55	59	36-50	44
April-June	28-51	18-45	34-49	59	28-41	44
July-September	30-50	23-44	34-77	59	35-40	42
October-December	16-46	21-43	34-42	59	32-38	42
1977:						
January-March	27-40	38-43	35-47	25-59	30-41	35
April-June	25-47	38-43	36-40	22-59	34-38	35
July-September	36-47	36-41	35-43	57	34-38	38
October-December	34-47	35-41	34-43	57	31-36	33-37
1978:						
January-March	30-38	34-41	33-37	34-57	31-39	29-33
April-June	30-39	34-43	33-35	34-57	28-35	32

1/ Not available.

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

Table 12.--High-carbon ferrochromium: Weighted average lowest net prices for the imported and U.S.-produced products, by chromium specifications and by quarters, January 1973-June 1978

(Cents per pound)

Period	Over 65 percent chromium		58-64 percent chromium		52-55 percent chromium	
	Imported	U.S.-produced	Imported	U.S.-produced	Imported	U.S.-produced
1973:						
January-March	20	17	16	24	16	16
April-June	20	19	19	24	16	18
July-September	22	20	1/	26	16	20
October-December	21	20	21	25	18	20
1974:						
January-March	22	21	30	25	17	20
April-June	27	25	1/	41	21	27
July-September	54	30	38	43	27	31
October-December	58	34	72	46	27	36
1975:						
January-March	72	46	63	59	38	49
April-June	56	50	62	59	38	49
July-September	56	53	51	59	41	49
October-December	50	53	48	59	40	49
1976:						
January-March	40	31	41	59	42	44
April-June	48	33	43	59	36	44
July-September	41	33	38	59	37	42
October-December	37	34	36	59	35	42
1977:						
January-March	37	42	40	28	39	35
April-June	37	41	37	25	36	35
July-September	38	40	39	57	36	38
October-December	36	38	38	57	34	37
1978:						
January-March	35	37	36	47	32	32
April-June	35	37	33	37	31	33

1/ Not available.

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

Table 13.--Low-carbon ferrochromium: Lowest net prices and net prices for the greatest volume of the imported and U.S.-produced products sold, by specified types and by quarters, January 1973-June 1978

(Cents per pound)

Period	68-73 percent chormum; 0.05 percent carbon maximum				No chromium specification; 0.025 percent carbon maximum			
	Lowest net price		Net price for greatest volume sold		Lowest net price		Net price for greatest volume sold	
	Imported	U.S.-produced	Imported	U.S.-produced	Imported	U.S.-produced	Imported	U.S.-produced
1973:								
January-March	31	31	33	31	30	33	32	32
April-June	29	33	34	34	31	34	35	35
July-September	30	35	35	34	35	35	37	35
October-December	31	34	36	34	37	35	38	35
1974:								
January-March	35	35	40	37	37	35	42	35
April-June	36	46	43	49	47	47	49	47
July-September	70	55	72	73	88	53	80	60
October-December	77	66	90	95	99	62	91	70
1975:								
January-March	117	101	116	119	118	85	103	100
April-June	113	96	114	100	117	100	99	100
July-September	93	95	103	100	119	100	94	100
October-December	80	92	88	92	111	96	87	100
1976:								
January-March	77	92	82	92	81	92	85	92
April-June	79	87	89	92	81	92	86	92
July-September	73	85	79	85	82	85	87	85
October-December	74	76	81	71	82	85	83	85
1977:								
January-March	64	82	53	75	82	85	83	85
April-June	70	79	71	73	75	85	78	85
July-September	68	71	70	71	81	75	80	75
October-December	64	66	64	66	79	75	82	75
1978:								
January-March	64	72	64	73	63	75	66	75
April-June	64	66	62	67	67	75	67	75

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

Table 14.--Ferrochromium: U.S. consumption, by types and by quarters, January 1973-June 1978

(In short tons, chromium content)

Period	High-carbon ferrochromium	Low-carbon ferrochromium	Total
1973:			
January-March	37,916	23,971	61,887
April-June	41,811	24,213	66,024
July-September	40,830	23,722	64,552
October-December	43,967	26,277	70,244
Total	168,539	102,444	270,983
1974:			
January-March	47,267	29,747	77,014
April-June	47,280	29,556	76,836
July-September	44,471	30,685	75,156
October-December	46,055	27,993	74,048
Total	188,728	123,424	312,152
1975:			
January-March	29,605	18,764	48,369
April-June	25,967	12,378	38,345
July-September	26,373	11,968	38,341
October-December	30,700	11,665	42,365
Total	123,772	50,732	174,504
1976:			
January-March	39,089	13,132	52,221
April-June	42,687	13,293	55,980
July-September	39,678	11,856	51,534
October-December	34,346	11,313	45,659
Total	159,480	54,065	213,545
1977:			
January-March	46,100	12,337	58,437
April-June	56,281	11,161	67,442
July-September	43,088	8,167	51,255
October-December	44,749	8,732	53,481
Total	190,218	40,397	230,615
1978:			
January-March	53,905	9,526	63,431
April-June	59,338	8,997	68,335

Source: Compiled from official statistics of the U.S. Bureau of Mines.

Note.--Because of revisions in annual data, quarterly figures may not add to the totals shown.

APPENDIX G

PRINCIPAL WORLD FERROCHROMIUM PRODUCERS

Principal world ferrochromium producers, 1976

Country	Company
Australia	Broken Hill Pty. Co., Ltd.
Brazil	Cia. de Ferro-Ligas de Bahia (Ferbasa).
Finland	Outokumpu Oy (Government owned).
France	Ste. Francaise d'Electrometallurgie (Sofrem).
Federal Republic of Germany	Elektrowerk Weisweiler GmbH.
India	Ferro Alloys Corp., Ltd.
	Mysore Iron & Steel, Ltd.
Italy	Acciaierie e Ferriere Lombarde Falck.
	Montedison S.p.A.
Japan	Awamura Metal Industry Co., Ltd.
	Japan Metals & Chemicals Co., Ltd.
	Kanose Denko KK.
	Nippon Denko KK.
	Nippon Tokushu Alloy KK.
	Pacific Metals Co., Ltd.
	Showa Denko KK.
Norway	AS Bjolvefossen.
Philippines	Ferro-Chemicals Inc.
Rhodesia	Rhodesian Alloys (Pty.), Ltd.
	Rio Tinto (Rhodesia), Ltd.
	Union Carbide Rhomet (Pty.), Ltd.
South Africa	Feralloys, Ltd.
	Ferrometals, Ltd. (Amcor).
	Palmiet Chrome Corp. (Pty.), Ltd.
	RMB Alloys (Pty.), Ltd.
	Tubatse Ferrochrome, Ltd.
Spain	Ferroaleaciones Espanolas SA.
Sweden	Airco Alloys Division AB.
	Avesta Jernverks AB.
	AB Ferrolegenngar.
Turkey	Etibank (Government owned).
United States	Airco Alloys Division, Air Reduction Co.
	Chromium Mining & Smelting Corp.
	Globe Metallurgical Division, Interlake, Inc.
	Satralloy Corp.
	Union Carbide Corp.

Source: U.S. Bureau of Mines.

Library Cataloging Data

U.S. International Trade Commission.
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