

UNITED STATES TARIFF COMMISSION

ULTRAMARINE BLUE

Report on Escape-Clause Investigation No. 7-93  
Under the Provisions of Section 7  
of the  
Trade Agreements Extension Act of 1951  
As Amended



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UNITED STATES TARIFF COMMISSION

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REPORT OF THE UNITED STATES TARIFF COMMISSION IN INVESTIGATION NO. 7-93  
UNDER SECTION 7 OF THE TRADE AGREEMENTS EXTENSION ACT OF 1951, AS  
AMENDED, RELATING TO ULTRAMARINE BLUES

United States Tariff Commission  
Washington, March 16, 1961

Introduction

This report, published pursuant to section 7(d) of the Trade Agreements Extension Act of 1951, as amended (19 U.S.C. 1364(d)), sets forth the finding and conclusion of the United States Tariff Commission in connection with an investigation (No. 7-93) to determine whether--

ultramarine blue, dry, in pulp, or ground in or mixed with oil or water, wash and all other blues containing ultramarine, provided for in paragraph 68 of the Tariff Act of 1930

(hereinafter referred to collectively as "ultramarine blues") are, as a result, in whole or in part of the customs treatment reflecting the concessions granted thereon under the General Agreement on Tariffs and Trade, being imported into the United States in such increased quantities, either actual or relative, as to cause or threaten serious injury to the domestic industry producing like or directly competitive products.

This investigation was instituted on September 16, 1960, by operation of section 3(b)(1) of the Trade Agreements Extension Act of 1951. Public notice of the institution of the investigation and of a public hearing to be held in connection therewith was given by posting copies of the notice at the office of the Tariff Commission in Washington, D.C., and at its New York City office, and by publishing the notice in the Federal Register (25 F.R. 9130), and in the September 22, 1960 issue of Treasury Decisions.

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A public hearing was duly held on January 17 and 18, 1961, and all interested parties were afforded reasonable opportunity to produce evidence and to be heard. In addition to the information obtained at the hearing, data was obtained from the Commission's files, from responses to questionnaires, and by fieldwork.

#### Finding and Conclusion of the Commission

On the basis of the investigation, including the hearing, the Commission finds that ultramarine blues are not being imported in such increased quantities, either actual or relative, as to cause or threaten serious injury to the domestic industry producing like or directly competitive products. Accordingly, in the judgment of the Commission, no sufficient reason exists for a recommendation to the President under the provisions of section 7 of the Trade Agreements Extension Act of 1951, as amended.

#### Principal Considerations Bearing on the Foregoing Finding and Conclusion

##### U.S. customs treatment

The products covered by this investigation were dutiable under the provisions of the Tariff Act of 1930 at 4 cents per pound, if valued at more than 10 cents per pound, and at 3 cents per pound, if valued at 10 cents per pound or less.

Pursuant to concessions granted in the trade agreement with the United Kingdom, effective January 1, 1939, the duty on the above described articles if valued at more than 10 cents per pound was reduced to 3 cents per pound, thereby, in effect, eliminating the value brackets. Pursuant

to concessions granted in the General Agreement on Tariffs and Trade the rate of duty, regardless of value, was reduced to 2-1/2 cents per pound effective January 1, 1948, to 2-3/8 cents per pound effective June 30, 1956, to 2-1/4 cents per pound effective June 30, 1957, and to 2-1/8 cents per pound effective June 30, 1958 (table 1).

#### Description and uses

Ultramarine blue is the term used to designate a group of inorganic, fire-process pigments which consist essentially of complex sodium-aluminum silicates combined with sulfur. The chemistry of the ultramarines is not well understood and experts are not in agreement on the arrangement of elements in the compounds, but it appears that the color is importantly influenced by the sulfur and by the silica. Ultramarine blue is used chiefly in the manufacture of paints, roofing granules, paper, rubber products, floor coverings, and plastics; it is also used for coloring anthracite coal and to make "laundry blue."

The Tariff Act of 1930 provides for "ultramarine blue, dry, in pulp, or ground in or mixed with oil or water, wash and all other blues containing ultramarine" and thus covers all grades and types, including laundry blues made from ultramarine. Although small amounts may be sold in pulp, or ground in or mixed with oil or water, nearly all ultramarine blue is marketed as a dry powder.

#### Manufacturing process

The principal ingredients used in the production of ultramarine blue are china clay, sulfur, soda ash, and a reducing agent such as charcoal, pitch, or rosin. The composition of the china clay, which is a complex aluminum silicate also known as kaolin, is much more important with regard to the nature of the final product than are the properties of the

other raw materials. The china clay is thoroughly washed and calcined before it is ground and mixed with the other ingredients.

The conversion of the raw mix into an acceptable pigment is, to a large extent, an art, and many trade secrets are involved in the manufacturing processes. The first step, the firing of the raw mix, is one of the most difficult; errors made during the firing can scarcely be eliminated during subsequent steps. To fire the mix, two types of kilns are used commercially--pot kilns and muffle kilns.

Pot kilns are charged by first loading the raw mix into pots, or crucibles, of fireclay, and then stacking the pots in the firing chambers. The pots, although standardized for a particular plant, may vary considerably in size and shape from plant to plant. They are generally cylindrical or conical, about 8 or 10 inches in diameter, and about a foot or a foot and a half high. Covers for the pots are of the same material as the pots themselves. Muffle furnaces, on the other hand, hold a single charge of about 2 tons of ground raw material. These furnaces are long and narrow, and roughly semi-circular in cross section. They are about 4 feet wide and about 2 feet high at the highest point.

The firing procedure for each type of kiln is similar. In general, there are three phases to the firing. The first phase consists of the heating-up period--the slow heating up of the kiln to reaction temperature. During the reaction phase, the free sulfur in the mix is burned, with a gradual increase in temperature. During the last phase, the mixture is slowly oxidized at a steady temperature to a raw blue. After the firing is completed, the kiln is allowed to cool--part of the time in the absence of air. The firing cycle is completed in about 15 days for pot kilns and in about 30 days for muffle kilns.

The relative efficiencies of the two types of furnaces have not been thoroughly determined. The muffle kiln process has higher fuel costs, but on the other hand, the cost of producing the crucibles is an expense of pot kiln operation that is avoided in muffle kiln operation. However, when all production costs are taken into account and considered in the light of the quality and grade of the resultant blue it is questionable whether one type of operation is more efficient than the other.

The raw blue as obtained from the furnaces is of coarse particle size and contains considerable sodium sulfate formed by reaction between the soda ash and the sulfur in the mix. It is accordingly low in hiding power and tinting strength, and must be washed to remove the soluble sodium sulfate, and ground to a suitable range of particle sizes. Next, since particle size is a major determinant of the quality of the finished product, each batch of ultramarine is separated into various fractions by selective sedimentation in specially designed tanks. These fractions are then filtered, dried, and pulverized, and stored until required for blending to meet commercial standards or customer specifications.

Each manufacturer of ultramarine, domestic as well as foreign, produces many grades of blue, as well as so-called ultramarine greens, violets, and reds. These grades and types are obtained by blending different proportions of various batches of ultramarine. As indicated above, the quality of a batch is determined to a large extent by the operating conditions during firing, e.g., temperature, firing time, and amount of air introduced. Composition of the raw mix used and particle-size range are the other important factors influencing the physical characteristics of a particular batch.

Laundry blue, or wash blue, is made from ultramarine by mixing approximately two parts of an extender such as sodium bicarbonate with one part of ultramarine. It may be processed into cakes or balls after addition of an adhesive.

The sodium sulfate leached from the raw blue during its post-firing processing is the only byproduct of the manufacture of ultramarine. The domestic manufacturer of ultramarine converts it to barium sulfate (blanc fixe), which is sold for use in paint, rubber, and ink. In addition to the blanc fixe produced as a byproduct, this manufacturer also produced large quantities of blanc fixe as a principal product.

#### Domestic producers

Ultramarine blue is currently manufactured in the United States by only one producer, the Standard Ultramarine and Color Co., of Huntington, West Virginia, which sells about 70 grades of ultramarine blues, as well as large amounts of numerous grades of iron blues, phthalocyanine blues and other colors. A part of its output of ultramarine blue is utilized by the company in its own manufacture of laundry blue. This company's sales and transfers of ultramarine blue declined by 22 percent from 1955 to 1960 (table 3). Total consumption of ultramarine blue in the United States declined from about 13.1 million pounds in 1955 to 7.2 million in 1960, or about 45 percent (table 4).

Until October 1955 the American Cyanamid Co. also produced ultramarine blue. It closed its ultramarine blue plant at Newark, N.J., after condemnation by the New York Port Authority. The plant was located near the Newark Airport and if rebuilt, it would have had to be relocated. The company decided to make other use of its available capital funds and to supply its ultramarine blue customers through an arrangement with the

Vereinigte Ultramarin Fabriken, of Cologne, Germany. Subsequently it turned over its business in ultramarine blue to the United Ultramarine and Chemical Co., an importing firm which gets its supplies mainly from its parent organization, the Vereinigte Ultramarin Fabriken.

The one present and the one former producer have granted the Commission permission to publish certain data shown in this report which pertain to their individual operations.

#### U.S. production

The volume of production of ultramarine blue in the United States has been distinctly smaller since the American Cyanamid Company discontinued its manufacture at the end of 1955. Production of ultramarine blue in the United States averaged 13.9 million pounds annually in 1950-55 when there were two producers, <sup>1/</sup> and 5.5 million pounds annually in 1956-60 (table 5). During the former period production varied between 18 percent above the average (in 1950) and 14 percent below the average (in 1952); during the latter period production varied between 14 percent above the average (in 1957) and 16 percent below the average (in 1960). Although the drop in total production beginning in 1956 was coincident with the 3-stage duty reduction made pursuant to the most recent GATT negotiations, the decline is principally a reflection of the cessation of output by the one domestic concern.

#### Sales and transfers of domestic ultramarine blue

Sales of domestically produced ultramarine blue totaled 11.9 million pounds in 1955, the last year in which two companies were in production

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<sup>1/</sup> The average annual output in 1950-55 of the present domestic producer was 7.0 million pounds.

(table 6). In 1956, when one of the companies was selling from its carried-over stocks, sales amounted to 7.8 million pounds. Thereafter, with the carryover eliminated and only one company in production, sales of domestically produced ultramarine blue stabilized at 5.5 million pounds in 1957, and 5.1 million pounds in each of the years 1958 and 1959, but declined to 4.5 million pounds in 1960.

In addition to the quantities sold, an annual average of 330,000 pounds of domestically produced ultramarine blue was used during 1955-60 in the manufacture of laundry blue. The quantity thus utilized varied little from year to year and was approximately the same in 1955 when two companies were in production as it was from 1956 onward when there was only a single producer.

The average realized price per pound of domestic ultramarine blue rose irregularly in the period 1955-60, reaching a peak of 29.4 cents per pound in 1960. The average annual value of sales by the Standard Ultramarine and Color Co. during that period was \$1.5 million, including export sales that averaged 428,000 pounds annually and amounted in 1960 to 324,000 pounds (table 7).

Sales of domestic ultramarine blue by this company in both domestic and foreign markets, together with quantities utilized in its own manufacture of laundry blue, were equivalent to 47 percent of apparent U.S. consumption of ultramarine blue in 1955, but after the cessation of production by the other producer the ratio of this company's total disposition of ultramarine blue to apparent U.S. consumption reached 64 percent in 1956 and 73 percent in 1958, and declined to 68 percent in 1960 (table 3).

Competition from other blue pigments

The two principal blue pigments of commerce, other than ultramarine blue, are phthalocyanine blue and iron blue.<sup>1/</sup> These three pigments are in considerable competition with one another, since with proper modification of formulations, any blue pigment can be substituted for another in many end uses. In a number of uses, however, where specific physical properties are desired, competition is limited because the properties of different blues, other than their color-imparting properties, are substantially dissimilar. Although consumption of both iron blue and ultramarine blue has declined due to competition from phthalocyanine blue, iron blue has been much less seriously affected by this competition than has ultramarine blue.

Phthalocyanine blues, best described as organic tetrazaporphine derivatives, are relatively new pigments, having been introduced to industry only about 25 years ago. Since its introduction phthalocyanine blue has unquestionably captured a large share of the former markets for ultramarine and other blue pigments, particularly in the post World War II period. Much of its growth, however, is due to its use in new applications. The competitive position of phthalocyanine vis-a-vis other blues has probably not yet stabilized. As a result of recent research, ultramarine may regain some of its lost share of the market; on the other hand, phthalocyanine blue may well make further inroads.

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<sup>1/</sup> Iron blue refers to a group of inorganic pigments chemically identified as sodium or potassium ferriferrocyanides.

Table 8 gives the production and imports of ultramarine blue and phthalocyanine blue since the end of World War II. As shown in this table, the domestic output of phthalocyanine increased from less than 0.5 million pounds in 1947 to 1.3 million pounds in 1950, and to 4.0 million pounds in 1960; imports, which were nil prior to 1953, were negligible in 1960. Production of ultramarine, however, although increasing from 9.9 million pounds in 1947 to 16.3 million pounds in 1950, declined to 13.2 million pounds in 1955 and to 4.7 million pounds in 1960. Imports of ultramarine increased from 0.3 million in 1947 to 2.2 million in 1960.

When compared on a basis of equal tinting strength,<sup>1/</sup> apparent consumption (ignoring exports) of ultramarine blue was about equal to that of phthalocyanine blue in 1950 (table 9). Ten years later, as a result of the vastly expanded use of phthalocyanine coupled with the decline in consumption of ultramarine, the ratio was 9 to 1 in favor of phthalocyanine blue. During the same period the ratio of iron blue consumption to ultramarine blue consumption rose from 5 to 1 to 9 to 1 (table 10).

The applicant concern, a substantial producer, has increased its production of phthalocyanine blue greatly.

#### U.S. imports

During the 6-year period, 1955-60, U.S. imports of ultramarine blue, wash blue, and all other blues containing ultramarine averaged 2.7 million

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<sup>1/</sup> Average relative tinting strengths determined in accordance with the standard methods of the International Commission on Illumination are as follows: Ultramarine blue, 100; iron blue, 750; and phthalocyanine blue, 1,450.

pounds annually as compared with an annual average of 1.0 million pounds in 1950-54 (table 11). The markedly higher average in 1955-60 is attributable to the cessation of production in the United States in 1955 by the American Cyanamid Co., whose customers were thereafter supplied with imports from West Germany. The foreign value of ultramarine blue imported in 1955-60 averaged \$418,000 annually as compared with an annual average of \$201,000 in 1950-54.

In the 11-year period 1950-60, the largest quantity of ultramarine blue imported in any one year was 4.0 million pounds, valued at \$542,000 in 1956. In 1957, imports declined to 2.2 million pounds, valued at \$374,000; in 1960, they amounted to 2.2 million pounds, valued at \$335,000 (table 11).

Before 1955 the United Kingdom supplied more than two-thirds of all the U.S. imports of ultramarine blue. After that date, West Germany became the principal supplier, but except for some loss of sales in the lower grades in 1955 and a year or two thereafter, the United Kingdom continued to supply about the same quantities as before, with no significant change in unit values.

The quantity of ultramarine blue reportedly imported from the Netherlands increased from 48,000 pounds in 1957 to 198,000 pounds in 1958 and to 445,000 pounds in 1959, the unit values declining from 18.2 cents to 17.2 and 13.4 cents per pound, respectively; imports of 368,000 pounds (unit value 13.3 cents) were reported from the Netherlands in 1960.

However, it is believed that these totals are erroneous and that more than 90 percent of the imports credited to the Netherlands were actually obtained from West Germany, and were shipped from the port of Rotterdam.

U.S. imports of ultramarine enter predominately through the port of New York. Significant amounts are also entered at Boston and Philadelphia, and smaller amounts at Chicago, Los Angeles, and Baltimore.

Imports from the United Kingdom and West Germany are handled by exclusive agents in the United States. Before 1956, imports from the United Kingdom were handled by the Standard Ultramarine and Color Co., which also manufactured ultramarine blue at Huntington, W. Va. In 1956 importation of ultramarine blue from the United Kingdom was taken over by Whittaker, Clark and Daniels, Inc., of New York. The American Cyanamid Co., after arranging to supply its ultramarine blue customers from West Germany in 1956, turned over this part of its business to the United Ultramarine and Chemical Co., of New York, which obtained most of its supplies of ultramarine blue from West Germany, beginning in December 1958.

The imports from the Netherlands, not including those erroneously recorded as originating in that country, are mainly direct imports from a Netherlands plant by industrial consumers in the United States.

About 5 or 6 percent of the annual imports of "ultramarine blue, wash and all other blues containing ultramarine", during the past six years consisted of laundry blue from the United Kingdom (see section on laundry blue).

### U.S. exports

U.S. exports of ultramarine blue averaged 359,000 pounds annually in the 4-year period 1957-60 (table 6); exports prior to 1957 were substantially larger. In that 4-year period the largest exports (461,571 pounds) were in the first year, after which the quantity declined to 301,056 pounds in 1959, and then rose to 324,037 pounds in 1960.

Exports in the form of laundry blue by the Standard Ultramarine and Color Co. (total export figures are unavailable) averaged 453,077 pounds annually in the same 4-year period (table 20).

### Inventories

The Commission has collected statistics on the inventories of ultramarine blue held by both the producers and the importers during recent years (table 12).

Producers' inventories totaled 2.8 million pounds on December 31, 1955, shortly after the American Cyanamid Co. discontinued production of ultramarine blue. A year later, stocks had been reduced to 1.0 million pounds. After increasing to 1.4 million pounds at the close of 1957, the producer's stocks declined to 0.9 million pounds at the end of 1958 and were 1.1 million pounds at the end of 1959. The quantity on hand at the end of 1960 was 0.9 million pounds.

Importers' stocks increased from 968,000 pounds on December 31, 1955 to 2.9 million pounds a year later, declined to 2.1 million pounds at the end of 1957 and to 1.8 million pounds at the end of 1958. Following an increase to 1.9 million pounds at the end of 1959, stocks declined further to 1.2 million pounds at the end of 1960.

### U.S. consumption

Apparent consumption of ultramarine blue in the United States has been calculated by adding the domestic sales of the producers and the importers (table 4). Sales of laundry blue have been adjusted to a 100-percent ultramarine blue basis. On this basis, apparent consumption declined from 13.1 million pounds in 1955 to 7.4 million pounds in 1958, recovered to 7.8 million pounds in 1959, but again declined to 7.2 million pounds in 1960.

Sales of ultramarine blue by importers combined with the ultramarine blue content of their sales of laundry blue accounted for 14 percent of U.S. apparent consumption in 1955, 19 percent in 1956, 36 percent in 1957, 33 percent in 1958, 36 percent in 1959, and 37 percent in 1960.

### Geographical distribution of sales

The geographical distribution of sales of ultramarine blue in the United States is shown, on a percentage basis, in table 13. About two-thirds of both domestically produced ultramarine and imported ultramarine appears to be sold in the Middle Atlantic States and the East North Central States; Ohio is believed to be the most important market among the latter group of States. The domestic producer, located in West Virginia, makes a larger proportion of its sales in the Central States than do the importers, most of whose sales are concentrated along the Atlantic seaboard.

### Sales of domestic and imported ultramarine blue by quality groupings

Most of the sales of domestically produced ultramarine blue in 1955 were of the highest and lowest grades. In 1959, however, most of these sales were of the intermediate grades. It appears that most of the decline in the market for domestically produced ultramarine blue was due

primarily to a decline in combined sales of the highest grades and the lowest. As reported to the Commission, sales by importers for 1959 were mainly of grades in the intermediate range. The average foreign unit value of imports increased about 13 percent from 1955 to 1960 (table 11) indicating that there was an increase in the average grade of imported ultramarine blue, since there was no general increase in prices of imported ultramarine during this period.

Sales of domestic and imported ultramarine blue by end uses

The largest end use of ultramarine blue, both for domestically produced and for imported ultramarine, is as a tinting pigment in protective and decorative coatings (tables 14 and 15). The coloring of roofing granules is the second largest market for domestic ultramarine, followed by the manufacture of paper, rubber products, and floor coverings. Imported ultramarine blue has almost all of the market in the plastics field, its second most important application. The coloring of anthracite coal is also a major but declining market for sales of both the domestic and the imported product. Imports for this purpose were especially large in 1954, 1955, and part of 1956, when the amount of ultramarine blue used per ton of coal was substantially increased to achieve better coverage of the coal. The grade of ultramarine blue used for coloring coal is a low-priced product and the large amounts of imports during the three years mentioned account for the lowered average values of imports from West Germany during that period.

Laundry blue still is an important outlet for the domestic producer, although most of the domestic market in this field has been lost to other types of products. A large part of the domestic laundry blue is exported, largely to Latin American countries. (See the section on laundry blue near the end of this report.)

#### Prices

No changes in the price quotations for individual grades of ultramarine blue have been made by domestic producers since 1953. Importers increased the prices of some grades in 1959 and 1960, but the prices of most of their grades were the same throughout 1955-60.

The average gross delivered price received by the Standard Ultramarine & Color Co. for its domestic and foreign sales of ultramarine blue dropped from 28.4 cents per pound in 1955 to 28.0 cents per pound in 1957, and rose to 29.4 cents per pound in 1960 (table 16). Discounts averaged 0.2 cent per pound in both 1958 and in 1959, and 0.3 cent in 1960. The net average realized price was 28.1 cents per pound in 1958, and 29.1 cents in both 1959 and 1960. These figures pertain only to sales, and exclude the grades utilized for the preparation of laundry blue in the company's own plant.

The average gross delivered price for 1958 and 1959 (table 7) was higher for shipments to points in the United States than for exports, which accounted for 5 to 10 percent of the sales. For example, in 1959 the average price of ultramarine blue delivered by this producer to its customers in the United States was 29.8 cents per pound, and the average price, freight prepaid, of deliveries to foreign destinations was 22.3

cents per pound. If prepaid freight to foreign destinations is, on the average, higher than to places in the United States, the difference in the net realized prices for domestic and foreign shipments is greater than the difference in the corresponding gross delivered values for domestic and foreign shipments. The difference, whether measured by delivered or net realized average prices, probably reflects, in part at least, a difference in the quality of the product shipped to domestic and foreign destinations, respectively.

The average delivered price of ultramarine blue shipped by importers to users in the United States is available only for 1959. In that year the average delivered price was 27.7 cents per pound for the imported material, and the average freight (whether paid by the shipper or the consignee) was 1.7 cents per pound. The larger importers granted discounts on a basis similar to that used by the U.S. producer, which may be estimated at 0.2 cent per pound, so that the importers' net realized average price per pound was about 25.8 cents.

Within each quality grouping are differences in the specifications of the ultramarine blue pigment actually sold by the producer and importers. The producer's average delivered price in 1959 for the extra-quality grades was slightly higher than the importers'; lower for the high-strength grouping; higher for medium-strength; and fractionally higher for low-strength.

In summary, when due allowance is made for quality, there was in 1959 little, if any, difference in the producer's and the importers' delivered prices for ultramarine blue in the U.S. market.

Employment and wages

The average number of persons employed in U.S. production of ultramarine blue and related work, including production of laundry blue in the same plant, during the period 1956-59, ranged from 247 in 1958 to 269 in 1956 and 1957. In the latest period for which data were reported (January-June 1960) the average number employed was 253 (table 17).

Average hourly wages paid for this work ranged from \$1.82 in 1958 to \$2.07 in the first half of 1960.

Laundry blues

Laundry blues, also known as wash blues or as bluing, were formerly used quite extensively in the United States in the washing of white textiles, in order to neutralize the residual yellow color and so make the wash appear whiter. Ultramarine blue is the blue pigment used to make virtually all these laundry blues. Today, chlorine bleaches and the so-called optical bleaches have largely replaced laundry blues in the United States. Most of the laundry blue made domestically is exported to the less industrialized areas of the world where rather primitive methods of laundering are used. Domestic sales of laundry blue are almost entirely in New York City and other areas which have a large foreign-born population.

To make a laundry blue from ultramarine blue, the latter is mixed with about twice its weight of sodium bicarbonate, and marketed either as a powder or, after the addition of an adhesive, as cakes or balls.

Laundry blue is usually shipped in fiberboard cases and packaged in more expensive containers than pure ultramarine blue which is usually

shipped in bags. The added packaging costs of the ultramarine wash blue tend to equalize the unit values of the two products.

About 8 percent of the quantity of the domestic ultramarine blue produced in recent years has been used in laundry blue. In 1960 the domestic producer of ultramarine blue transferred 357,584 pounds of ultramarine blue, valued at \$84,426, to its laundry blue department (table 18). After the addition of other ingredients and putting up the laundry blue in packages, 1,013,194 pounds of laundry blue was produced. Sales amounted to 1,013,313 pounds, the gross return of which was \$228,539. Of total sales, 419,105 pounds was for export (table 20). There are also two or three other plants in the United States that produce laundry blue, largely from imported ultramarine blue. Their output of laundry blue in 1959 is estimated at 532,000 pounds, which was sufficient to supply about 37 percent of the domestic market for laundry blue.

About 5 or 6 percent of the animal imports reported as "ultramarine blue, wash blues, etc.," consists of laundry blue imported directly as such. About two-thirds of the weight of this material is of materials other than ultramarine blue, but the unit values are not greatly different from those of imported ultramarine blue in pure form. The imports of laundry blue were equivalent to about 14 percent of the total sales of laundry blue in the domestic market in 1960 (table 19).

The average unit value of sales of laundry blue by the domestic producer was 22.3 cents per pound in 1959, and 22.6 cents per pound in 1960

(table 20). Sales values as given above are gross delivered values; the corresponding values, taking into account trade discounts, are about 0.1 cent per pound lower.

Inventories of laundry blue carried by the domestic producer generally amount to between 15 and 20 percent of sales (table 18).

#### Financial experience of the domestic producer

The domestic producer furnished data showing its profit-and-loss experience on the production and sales of ultramarine blue and laundry blue. Such data are not presented in this report because to do so would reveal the individual operations of that concern.

#### Summary

The information obtained in this investigation shows that U.S. production of ultramarine blue averaged 5.5 million pounds annually in 1956-60, and that output in 1960, a recession year, was only 16 percent below this average; that a sharp increase in imports in 1955-56 was brought about by the decision of a domestic concern to abandon a condemned domestic ultramarine blue plant and to supply its customers with imports, but that the quantities imported for this purpose have not been as large as this concern's previous domestic production; that after an initial rise in 1955-56, the trend of imports has not risen, and sales of imported ultramarine blue decreased from 2.8 million pounds in 1959 to 2.6 million pounds in 1960, and imports of ultramarine blue decreased from 2.9 million pounds in 1959 to 2.2 million pounds in 1960; that the single domestic producer after 1955 increased its share of the total U.S. market for ultramarine blue from 47.4 percent in 1955 to 67.5 percent in 1960; that there has been no appreciable decline in employment in the domestic industry and wage rates have increased; that the producer's

inventory declined significantly during 1960; that the annual average net realized price for domestic ultramarine blue has increased since 1955 and was at a peak in 1960; that prices at which imports have been sold have not damaged the price structure of the domestic industry; that a decline in the profitability of ultramarine blue in 1960 is attributable largely to factors other than imports, which were substantially lower in that year than in the preceding year; that imports of ultramarine blue did not prevent the domestic producer from making reasonable profits on its ultramarine blue operations in other recent years; that the total U.S. consumption of ultramarine blues has declined steadily in recent years as a result of inroads made by competing blue pigments, largely of domestic origin; that there has been particularly rapid growth in the use of phthalocyanine blue, which by 1960 supplied about 10 times more pigment in terms of tinting strength in industrial manufacture than ultramarine blue; that the domestic producer of ultramarine blue is also a producer of phthalocyanine blue and has expanded its production of the latter severalfold in recent years whereas its production of ultramarine blue has not increased; that the competition facing the domestic industry producing ultramarine blue is primarily from the competing blue pigments rather than from imports of ultramarine blue; that whatever difficulties the domestic industry may be encountering, they are not due in any substantial degree to imports.

In view of the foregoing considerations, the Commission concludes that ultramarine blues are not being imported into the United States in such increased quantities as to cause or threaten serious injury to the domestic industry concerned, and that, therefore, no sufficient reason exists for a recommendation to the President under the provisions of section 7 of the Trade Agreements Extension Act of 1951, as amended.

**APPENDIX**

Table 1.--Ultramarine blue: U.S. rates of duty

(Cents per pound)

Description, Tariff Act of 1930	Statutory rate	Trade agreement negotiation	
		Rate	Effective date and trade agreement 1/
Par. 68:			
Ultramarine blue, dry,			
in pulp, or ground in:			
or mixed with oil or			
water, wash and all			
other blues con-			
taining ultramarine	2/ 4	3	1/1/39; U.K,
		2½	1/1/48.
		2-3/8	6/30/56.
		2¼	6/30/57.
		2-1/8	6/30/58.

1/ General Agreement on Tariffs and Trade, unless otherwise indicated.

2/ Rate was 3 cents per pound on imports valued at 10 cents per pound or less.

Table 2.--Ultramarine blue: Average ad valorem equivalents of the duties, 1949-60

Year	Unit value	Duty	Unit value plus duty	Average ad valorem equivalent of duty
	<u>Cents per pound</u>	<u>Cents per pound</u>	<u>Cents per pound</u>	<u>Percent</u>
1949----	25.4	2.5	27.9	9.8
1950----	18.5	2.5	21.0	13.5
1951----	19.5	2.5	22.0	12.8
1952----	19.6	2.5	22.1	12.8
1953----	19.5	2.5	22.0	12.8
1954----	19.2	2.5	21.7	13.0
1955----	13.7	2.5	16.2	18.2
1956----	13.5	<u>1/</u> 2.375	15.9	17.6
1957----	16.8	<u>1/</u> 2.25	19.0	13.4
1958----	17.6	<u>1/</u> 2.125	19.7	12.1
1959----	15.9	2.125	18.0	13.4
1960----	15.5	2.125	17.7	13.6

1/ Effective June 30.

Source: Compiled by U.S. Tariff Commission from data published by U.S. Department of Commerce.

Table 3.--Ultramarine blue: Sales and transfers of the Standard Ultramarine & Color Co., compared with U.S. apparent consumption, 1955-60

Year	Apparent U.S. consumption	Disposition by Standard Ultramarine & Color Co. through sales and transfers	
		Quantity	Ratio to apparent U.S. consumption
	Pounds	Pounds	Percent
1955-----	13,110,747	6,215,870	47.4
1956-----	8,992,383	5,734,402	63.8
1957-----	8,274,779	5,986,165	72.3
1958-----	7,392,214	5,415,187	73.2
1959-----	7,822,003	5,484,583	70.1
1960-----	7,223,778	4,876,080	67.5

Source: Compiled by the U.S. Tariff Commission from data supplied by producers and importers.

Table 4.--Ultramarine blue: Apparent U.S. consumption, 1955-60

Year	(In pounds)						Apparent consumption
	Sales in the United States of ultramarine blue		Ultramarine blue equivalent of sales in the United States of laundry blue		Total		
	Domestic product <u>1/</u>	Imports <u>2/</u>	Total	Domestic product	Imports	Total	
1955	11,338,662	1,712,000	13,050,662	3/	60,085	60,085	13,110,747
1956	7,259,275	1,678,245	8,937,520	3/	54,863	54,863	8,992,383
1957	5,021,529	2,976,274	7,997,803	227,295	49,681	276,976	8,274,779
1958	4,731,949	2,403,180	7,135,129	211,192	45,893	257,085	7,392,214
1959	4,794,777	2,799,275	7,542,165	233,586	48,205	279,838	7,822,003
1960	4,194,459	2,604,515	6,975,935	207,973	39,973	247,843	7,223,778

1/ May include a small quantity of export sales, 1955 and 1956.

2/ Estimated, 1955-58. 3/ Not available.

Source: Compiled by the U.S. Tariff Commission from data supplied by producers and importers, except as noted.

Table 5.--Ultramarine blue: U.S. production, and imports for consumption, 1950-60

(In pounds)

Year	Production	Imports <sup>1/</sup>	Total
1950-----	16,335,375	1,096,700	17,432,075
1951-----	15,971,080	2,062,240	18,033,320
1952-----	11,908,004	719,659	12,627,663
1953-----	12,988,678	702,019	13,690,697
1954-----	12,770,378	644,211	13,414,589
1955-----	13,161,569	2,272,085	15,433,654
1956-----	6,130,365	3,705,482	9,835,847
1957-----	6,309,358	2,178,528	8,487,886
1958-----	4,944,432	2,128,482	7,072,914
1959-----	5,642,892	2,907,510	8,550,402
1960-----	4,672,595	2,194,660	6,867,255

<sup>1/</sup> Imports of laundry blue not converted to ultramarine blue basis, 1950-54.

Source: Production, compiled by U.S. Tariff Commission from data supplied by producers; imports, official statistics of U.S. Department of Commerce, 1950-54 and compiled from data supplied by importers, 1955-60.



Table 7.--Ultramarine blue: Sales by Standard Ultramarine & Color Co., 1955-60

Year	Quantity (pounds)	Gross delivered value	
		Total	Average per pound
Domestic sales			
			<u>Cents</u>
1955-----	5,396,119	1/	1/
1956-----	5,017,275	1/	1/
1957-----	5,021,529	1/	1/
1958-----	4,731,949	\$1,363,971	28.8
1959-----	4,794,777	1,427,301	29.8
1960-----	4,194,459	1/	1/
Export sales			
			<u>Cents</u>
1955-----	605,351	1/	1/
1956-----	524,331	1/	1/
1957-----	461,571	1/	1/
1958-----	351,293	76,474	21.8
1959-----	301,056	67,227	22.3
1960-----	324,037	1/	1/
Total			
			<u>Cents</u>
1955-----	6,001,470	1,704,149	28.4
1956-----	5,541,606	1,566,178	28.3
1957-----	5,483,100	1,536,232	28.0
1958-----	5,083,241	1,440,246	28.3
1959-----	5,095,833	1,494,528	29.3
1960-----	4,518,496	1,327,747	29.4

1/ Not available.

Source: Compiled by U.S. Tariff Commission from data supplied by Standard Ultramarine & Color Company.

Table 8.--Ultramarine blue and phthalocyanine blue: U.S. production, and imports for consumption, 1947 and 1950-60

(In thousands of pounds)

Year	Ultramarine blue		Phthalocyanine blue	
	Production	Imports	Production <sup>1/</sup>	Imports
1947-----	9,910	327	496	-
1950-----	16,335	1,097	1,262	-
1951-----	15,971	2,062	1,637	-
1952-----	11,908	720	2,052	-
1953-----	12,999	702	2,907	4.4
1954-----	12,770	644	2,523	.5
1955-----	13,162	2,476	3,478	21.4
1956-----	6,130	4,005	2,769	.6
1957-----	6,309	2,226	3,242	2.5
1958 <sup>2/</sup> -----	4,944	2,461	3,290	1.4
1959 <sup>2/</sup> -----	5,643	3,073	4,074	1.3
1960 <sup>2/</sup> -----	4,673	2,154	4,002	<sup>3/</sup> 1.0

<sup>1/</sup> Full-strength pigments plus pigment content of extended pigments.

<sup>2/</sup> Import data for ultramarine blue are preliminary.

<sup>3/</sup> Estimated.

Source: Ultramarine blue--production, compiled by U.S. Tariff Commission from data supplied by producers; imports, official statistics of the U.S. Department of Commerce. Phthalocyanine blue--production, Synthetic Organic Chemicals, U.S. Production and Sales; imports, Imports of Coal-Tar Products, except as noted.

Table 9.--Ultramarine blue: Relative importance in U.S. market compared to phthalocyanine blue, 1947 and 1950-60

Year	Production plus imports					Ratio of ultramarine blue (col. 4) to total (col. 5)
	Phthalocyanine blue		Ultramarine blue		Total (cols. 3 plus 4)	
	Actual (2)	Tinting equivalent $\frac{1}{3}$ (3)	blue (4)			
	<u>1,000</u>	<u>1,000</u>	<u>1,000</u>	<u>1,000</u>	<u>1,000</u>	
	pounds	pounds	pounds	pounds	pounds	Percent
1947	496	7,192	18,000	25,192	71.2	
1950	1,262	18,292	17,432	35,724	48.8	
1951	1,637	26,013	18,033	44,043	40.9	
1952	2,052	29,754	12,628	42,382	29.8	
1953	2,911	42,215	13,691	55,906	24.5	
1954	2,524	36,591	13,415	50,006	26.8	
1955	3,499	49,741	15,638	65,379	23.8	
1956	2,770	40,159	10,135	50,294	20.2	
1957	3,245	47,045	8,535	55,580	15.4	
1958	3,291	47,725	7,406	55,131	13.4	
1959	4,073	58,092	8,716	67,808	12.9	
1960	4,003	58,044	6,826	64,870	10.5	

$\frac{1}{3}$  Production and imports multiplied by 14.5 to equal the tinting strength of ultramarine blue.

Source: Compiled from official statistics of the U.S. Department of Commerce, and from the annual Synthetic Organic Chemical reports of the U.S. Tariff Commission.

Table 10.--Ultramarine blue: Relative importance in U. S. market compared to iron blue, 1947 and 1950-58

Year	Production plus imports				Total (cols. 3 plus 4)	Ratio of ultramarine blue (col. 4) to total (col. 5)
	Iron blue	Ultramarine:		blue		
(1)	Actual (2)	Tinting equivalent $\frac{1}{2}$ (3)	blue	(4)	(5)	(6)
	1,000 pounds	1,000 pounds	1,000 pounds	1,000 pounds	1,000 pounds	Percent
1947	11,287	84,653	18,000	102,653	17.5	
1950	2/10,800	81,000	17,432	98,432	18.3	
1951	2/10,200	76,500	18,033	94,533	19.0	
1952	7,430	55,725	12,628	68,353	18.5	
1953	10,160	76,200	13,691	89,891	15.2	
1954	9,425	70,688	13,415	84,103	16.0	
1955	10,502	78,765	15,638	94,403	16.6	
1956	10,980	82,350	10,135	94,485	11.0	
1957	9,966	74,745	8,535	83,280	10.2	
1958	8,768	66,260	7,406	73,666	10.1	

$\frac{1}{2}$  Production and imports multiplied by 7.5 to equal the tinting strength of ultramarine blue.  
 $\frac{2}{2}$  Estimated.

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

Table 11.--Ultramarine blue and wash and all other blues containing ultramarine: U.S. imports for consumption, 1949-60

Period	Total	West Germany	United Kingdom	Netherlands	Belgium	Other
Quantity (pounds)						
1949	809,895	<sup>1/</sup> 3,748	688,967	-	117,180	-
1950	1,096,700	<sup>1/</sup> 191,528	609,113	53,454	218,632	24,073
1951	2,062,240	959,863	446,251	76,520	418,228	161,378
1952	719,659	64,479	612,935	2,240	40,000	5
1953	702,019	92,533	530,898	38,640	15,098	24,850
1954	644,211	165,091	429,016	36,400	13,704	-
1955	2,476,137	2,170,234	241,852	39,019	25,032	-
1956	4,004,605	3,574,711	342,478	10,000	77,416	-
1957	2,226,012	1,824,317	324,256	47,823	29,616	-
1958 <sup>2/</sup>	2,461,070	1,825,287	423,283	197,500	15,000	-
1959 <sup>2/</sup>	3,073,082	1,969,051	638,877	445,154	17,000	3,000
1960 <sup>2/</sup>	2,153,756	1,097,752	680,504	368,000	7,500	-
Foreign value						
1949	\$206,027	<sup>1/</sup> \$1,051	\$157,073	-	\$47,903	-
1950	202,869	<sup>1/</sup> 32,215	90,131	\$9,078	66,319	\$5,126
1951	401,808	190,690	75,637	15,039	89,506	30,936
1952	140,870	12,964	120,507	396	7,001	2
1953	136,930	14,997	109,034	6,125	2,226	3,838
1954	124,075	25,820	90,533	5,487	2,235	-
1955	339,104	272,534	56,297	6,218	4,055	-
1956	541,746	456,941	70,744	1,770	12,291	-
1957	374,230	297,069	63,528	8,714	4,919	-
1958 <sup>2/</sup>	431,990	298,569	97,409	33,951	2,061	-
1959 <sup>2/</sup>	488,495	297,056	128,223	59,777	2,808	631
1960 <sup>2/</sup>	334,566	144,574	139,858	46,895	1,239	-
Unit value (cents per pound)						
1949	25.4	<sup>1/</sup> 28.0	22.8	-	40.9	-
1950	18.5	<sup>1/</sup> 16.8	14.8	17.0	30.3	21.3
1951	19.5	19.9	16.9	19.6	21.4	19.2
1952	19.6	20.1	19.7	17.7	17.5	40.0
1953	19.5	16.2	20.5	15.8	14.7	15.4
1954	19.2	15.6	21.1	15.1	16.3	-
1955	13.7	12.6	23.3	15.9	29.6	-
1956	13.5	12.8	20.6	17.7	15.9	-
1957	16.8	16.3	19.6	18.2	16.6	-
1958 <sup>2/</sup>	17.6	16.4	23.0	17.2	13.7	-
1959 <sup>2/</sup>	15.9	15.1	20.1	13.4	16.5	21.0
1960 <sup>2/</sup>	15.5	13.2	20.6	13.3	16.5	-

<sup>1/</sup> Includes East Germany.  
<sup>2/</sup> Preliminary.

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

Note.--Only a small quantity of the imports consisted of laundry blue; the remainder consisted of ultramarine blue.

Table 12.-Ultramarine blue: Inventories, 1955-60 <sup>1/</sup>

(In pounds)

Date	Producers	Importers
December 31--		
1955-----	2,798,638	967,117
1956-----	1,018,144	2,908,222
1957-----	1,377,535	2,069,360
1958-----	920,600	1,744,430
1959-----	1,119,228	1,862,052
1960-----	947,779	1,234,040

<sup>1/</sup> Adjusted to ultramarine blue equivalent where inventories consisted of laundry blue.

Source: Compiled by the U.S. Tariff Commission from data supplied by producers and importers.

Table 13.--Ultramarine blue and laundry blue: Geographical distribution of sales, 1959

(Percent of total quantity sold)

Region	Ultramarine blue		Laundry blue
	Producer's sales	Importers sales	Producer's sales <sup>1/</sup>
New England-----	9.2	8.2	-
Middle Atlantic-----	33.0	45.2	59.1
East North Central-----	31.6	14.4	2/
West North Central-----	1.6	9.6	2/
South Atlantic-----	2.5	6.1	1.5
East South Central-----	2.9	2.4	2/
West South Central-----	5.8	2.2	-
Mountain States-----	.4	1.6	-
Pacific States-----	5.0	10.2	.2
Foreign Countries-----	8.0	.1	39.2
Total-----	100.0	100.0	100.0

<sup>1/</sup> Based on data supplied by one producer, who was not the only producer.

<sup>2/</sup> Less than 0.05 percent.

Source: Compiled by U.S. Tariff Commission from data supplied by producer and importers.

Table 14.--Ultramarine blue: Estimated sales of producer and importers, by end uses, 1959

End use	Total sales	Importer sales	U.S. producer sales 1/	Importer share
	<u>1,000 pounds</u>	<u>1,000 pounds</u>	<u>1,000 pounds</u>	<u>Percent of total</u>
Paints-----	2,343	699	1,644	29.8
Roofing granules-----	1,088	163	925	15.0
Paper-----	645	135	510	20.9
Rubber-----	602	150	452	24.9
Floor covering	554	83	471	15.0
Coloring coal-	549	330	219	60.1
Plastics-----	467	416	51	89.1
Laundry blue---	437	48	2/389	11.0
Coated fabrics-	341	140	201	41.0
Inks-----	338	78	260	23.1
Crayons-----	306	96	210	31.4
Cement-----	183	30	153	16.4
Other uses-----	469	469	-	100.0
Total-----	8,322	2,837	5,485	34.1

1/ Sales are calculated from percentages of sales by end uses reported for 1957, except for roofing and coal-coloring uses, which were reported for 1959.

2/ Represents transfers treated as sales for purpose of this table.

Source: Compiled by U.S. Tariff Commission from data supplied by importers and producer.

Table 15.--Ultramarine blue: End uses of domestic product, 1954 and 1957, and of imported product, 1959

(Percent of quantity sold)

End use	: Sales by : Company A : 1954	: Sales by : Company B : 1957	: Sales by : 9 importers : 1959
Paints-----	15.6	25.5	24.5
Roofing granules-----	19.0	13.6	5.7
Paper-----	8.0	7.9	4.7
Rubber-----	5.3	7.0	5.2
Floor covering-----	4.4	7.3	2.9
Coloring coal-----	28.4	16.0	11.6
Plastics-----	2.8	.8	14.6
Laundry blue-----	3.8	<u>1/</u> 8.4	6.2
Coated fabrics-----	5.3	3.1	4.9
Inks-----	1.3	4.0	2.7
Crayons-----	1.1	3.2	3.4
Cement-----	-	2.0	1.1
Leather-----	-	-	4.6
Other uses-----	5.0	1.2	7.9
Total-----	100.0	100.0	100.0

1/ Represents transfers treated as sales for purpose of this table.

Source: Compiled by U.S. Tariff Commission from data supplied by producer and importers.

Table 16.--Ultramarine blue: Average gross delivered value, discounts, and average net price per pound (Standard Ultramarine & Color Co.), 1955-60

(In cents per pound)

Period	Gross (delivered)	Discounts	Average net price
1955-----	28.4	1/	1/
1956-----	28.3	1/	1/
1957-----	28.0	1/	1/
1958-----	28.3	0.2	28.1
1959-----	29.3	.2	29.1
1960-----	29.4	.3	29.1

1/ Not reported.

Source: Compiled by the U.S. Tariff Commission from data supplied by the Standard Ultramarine & Color Co.

Table 17. --Ultramarine blue and laundry blue: Average number of persons employed in production and related work, and average hourly wages in the U.S. industry 1/, 1956-59, and January-June 1960

Period	Number employed	Average hourly wages
1956-----	269	\$1.88
1957-----	269	1.84
1958-----	247	1.82
1959-----	255	1.89
1960 (January-June)-----	253	2.07

1/ Data are for industry comprising production of ultramarine blue, plus laundry blue only when produced in the same plant in which ultramarine blue is produced.

Source: Compiled by U.S. Tariff Commission from data supplied by producer.

Table 18.--Laundry blue: U.S. production, sales, and inventories, 1957-60 <sup>1/</sup>

Period	Production		Sales	Inventory, end of period
	Ultramarine blue used in manufacture	Gross weight of laundry blue		
	Quantity (pounds)			
1957-----	416,764	1,415,428	1,308,480	166,686
1958-----	328,066	1,196,971	1,144,057	216,346
1959-----	388,550	1,247,845	1,235,631	223,789
1960-----	357,584	1,013,194	1,013,313	201,473
	Value			
1957-----	2/	2/	\$ 244,030	\$34,116
1958-----	\$ 57,352	\$ 241,770	238,633	43,698
1959-----	79,888	248,831	275,135	44,624
1960-----	84,426	231,916	228,539	45,940
	Average unit value (cents per pound)			
1957-----	2/	2/	18.6	20.5
1958-----	20.5	20.2	20.8	20.2
1959-----	20.6	19.9	22.3	19.9
1960-----	23.6	22.9	22.6	22.8

<sup>1/</sup> Production, sales, and inventories of laundry blue produced in the same plant that produced ultramarine blue. Laundry blue produced by others not included.

<sup>2/</sup> Not available.

Source: Compiled by U.S. Tariff Commission from data supplied by producer.

Table 19. --Laundry blue: Sales by domestic producers and by importers, exports, and apparent U.S. consumption, 1955-60

Year	Sales	Sales	Export	Apparent	Ratio to apparent	
	by	by	sales	domestic	consumption of --	
	producers	importers		consumption	Sales	Sales
	1/				by	by
	1,000	1,000	1,000	1,000	Percent	Percent
	pounds	pounds	pounds	pounds		
1955---	2,000	180	439	1,741	114.9	10.3
1956---	1,750	165	497	1,418	123.4	11.6
1957---	1,800	149	535	1,414	127.3	10.5
1958---	1,650	138	373	1,415	116.6	9.8
1959---	1,768	145	485	1,428	123.8	10.2
1960---	1,540	185	419	1,306	117.9	14.2
:	:	:	:	:	:	:

1/ Partly estimated.

Source: Compiled by U.S. Tariff Commission from data supplied by producers and importers.

Table 20. --Laundry blue: Sales by Standard Ultramarine & Color Co., 1955-60

Period	Domestic	Export	Total
Quantity (pounds)			
1955-----	-	439,187	439,187
1956-----	-	497,000	497,000
1957-----	773,113	535,367	1,308,480
1958-----	770,772	373,285	1,144,057
1959-----	751,081	484,550	1,235,631
1960-----	594,208	419,105	1,013,313
Gross delivered value			
1955-----	-	\$121,217	\$121,217
1956-----	-	141,146	141,146
1957-----	<u>1/</u>	<u>1/</u>	244,030
1958-----	\$136,332	102,301	238,633
1959-----	136,592	138,543	275,135
1960-----	<u>1/</u>	<u>1/</u>	228,537
Average value (cents per pound)			
1955-----	-	27.6	27.6
1956-----	-	28.4	28.4
1957-----	<u>1/</u>	<u>1/</u>	18.6
1958-----	17.7	27.4	20.9
1959-----	18.2	28.6	22.3
1960-----	<u>1/</u>	<u>1/</u>	22.6

1/ Not available.

Source: Compiled by U.S. Tariff Commission from data supplied by producer.