UNITED STATES TARIFF COMMISSION

# SHEET GLASS
# (BLOWN OR DRAWN FLAT GLASS)

Report to the President on
Investigation No. TEA-I-EX-6 Under
Section 351(d)(3) of the
Trade Expansion Act of 1962

TC Publication 306
Washington, D.C.
December 1969

# UNITED STATES TARIFF COMMISSION



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Address all communications to

United States Tariff Commission

Washington, D.C. 20436

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C O N T E N T S



TABLES



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.

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# REPORT TO THE PRESIDENT

U.S. Tariff Commission
December 1, 1969

To the President:

This report is made pursuant to section 351(d)(3) of the Trade Expansion Act of 1962 (76 Stat. 900), which provides that--

> Upon petition on behalf of the industry concerned, filed with the Tariff Commission not earlier than the date which is 9 months, and not later than the date which is 6 months, before the date any increase or imposition referred to in paragraph (1) or (2) of subsection (c) is to terminate by reason of the expiration of the applicable period prescribed in paragraph (1) or an extension thereof under paragraph (2), the Tariff Commission shall advise the President of its judgment as to the probable economic effect on such industry of such termination.

## Introduction

Following an investigation by the Tariff Commission and reports to the President on May 17, 1961 1/ and January 10, 1962 2/ under section 7 of the Trade Agreements Extension Act of 1951, as amended, the President proclaimed increased rates of duty applicable to sheet glass, effective at the close of business on June 17, 1962. 3/

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1/ Cylinder, Crown, and Sheet Glass: Report to the President on Escape-Clause Investigation No. 7-101, TC Publication 17, 1961.

2/ Cylinder, Crown, and Sheet Glass: Report in Response to the President's Request for Information Supplemental to the Report on Escape-Clause Investigation No. 7-101, TC Publication 48, 1962.

3/ Proclamation No. 3455, dated Mar. 19, 1962; 3 CFR, 1962 Supp., p. 35, and Proclamation No. 3458, dated Mar. 27, 1962; 3 CFR, 1962 Supp., p. 40.

Since June 1962, the Commission has maintained a continuing review of developments with respect to sheet glass. 1/

On January 11, 1967, the President, pursuant to the provisions of section 351(c)(1)(A) of the Trade Expansion Act, terminated certain of the increases in the rates that had been imposed pursuant to the escape-clause procedure and reduced the others. The increases that remained in effect were scheduled to terminate at the close of October 11, 1967, by operation of section 351(c)(1)(B). Following a report by the Tariff Commission in September 1967, 2/ the President continued until the close of December 31, 1969, the remaining increases in the rates of duty on sheet glass that were still in effect pursuant to the escape-clause procedure. In September 1968 the Commission submitted its annual review report. 3/ On June 27, 1969 a petition for continuation of the rates

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1/ Cylinder, Crown, and Sheet Glass: Report to the President (No. TEA-IR-7-63) Under Section 351(d)(1) of the Trade Expansion Act of 1962, TC Publication 110, 1963, and Sheet Glass (Blown or Drawn Flat Glass): Report to the President (No. TEA-IR-7-66) Under Section 351(d)(1) of the Trade Expansion Act of 1962, TC Publication 178, 1966. Drawn or Blown Flat Glass (Sheet Glass): Report to the President on Investigation No. TEA-1A-4 Under Section 351(d)(2) of the Trade Expansion Act of 1962, TC Publication 158, 1965. Ordinarily, an annual review on sheet glass would have been submitted on Sept. 28, 1964. Inasmuch as a comprehensive investigation under sec. 351(d)(2) was in progress on that date, no annual review report was submitted during 1964. The report submitted pursuant to sec. 351(d)(2) during 1965 was also submitted as the annual review report for that year.

2/ U.S. Tariff Commission, Sheet Glass (Blown or Drawn Flat Glass): Report to the President on Investigation No. TEA-I-EX-4 Under Section 351(d)(3) of the Trade Expansion Act of 1962, TC Publication 215, 1967.

3/ U.S. Tariff Commission, Sheet Glass (Blown or Drawn Flat Glass): Report to the President on Investigation No. TEA-IR-7-68 Under Section 351(d)(1) of the Trade Expansion Act of 1962, TC Publication 262, 1968.

currently applicable was filed on behalf of the sheet glass industry. Accordingly, on July 3, 1969, the Commission instituted the instant investigation to determine the probable economic effect on the sheet glass industry of the termination of the remaining escape-action increases on window glass measuring not over 100 united inches. A public hearing was held on October 14 and 15, 1969, in conjunction with the investigation.

## Probable Economic Effect of Restoration of the Concessions on Window Glass

### Statement of Chairman Sutton and Commissioner Moore

In our opinion the termination of the modified escape-action rates of duty on imported window glass would lead to serious impairment of the economic condition of the domestic industry producing that product. The glass to which these duties are applicable (window glass measuring not over 100 united inches) is of central concern to the domestic producers of sheet glass. As much today as in earlier years, such glass provides the core upon which the viability of the domestic industry depends. In recent years, window glass has accounted for more than 60 percent of domestic production of sheet glass.

The U.S. sheet glass industry, which is experiencing sharp import competition in conjunction with stagnant markets for much of its product, faces difficult circumstances. U.S. consumption of sheet glass has not grown with the economy, and recent consumption levels have been within the range of those in the past decade. Consumption in 1967 was lower than any other year since 1961; it rose moderately in 1968, but was lower in that year than in several other recent years. Consumption of sheet glass has likely now turned downward as a result of the steady and marked decline in new housing starts throughout 1969. Shipments of sheet glass by the domestic producers, and the employment

afforded workers by the domestic industry, were both lower in 1967 than in any year since 1961. Shipments by domestic producers in 1968 (1,350 million pounds) were somewhat larger than in 1967 (1,250 million pounds), responding to a far larger increase in domestic consumption. The 1968 shipments, however, were materially smaller than in 1964 and 1965 (1,530 million pounds) when consumption was about the same as in 1968, evidencing a deteriorating position of the domestic industry in the U.S. market. Employment afforded workers by the domestic industry in 1968, moreover, was at its lowest level in many years; man-hours worked in the production of sheet glass amounted to 11.8 million hours in 1968, compared with 13.8 million in 1964. Meanwhile, U.S. imports of sheet glass, as well as imports of window glass, have supplied an increasing share of domestic consumption. The ratio of annual imports of sheet glass to consumption were equivalent to 22-24 percent in 1964 and 1965, 25-27 percent in 1966 and 1967, and 32 percent in 1968; the corresponding ratio in the first half of 1969, influenced to an unknown degree by a lengthy dock strike early in the year, was 27 percent. Taking window glass alone, the ratio of annual imports to consumption followed a roughly similar pattern. Since the mid-1960's, imports have increased appreciably the share of the market they supply.

In recent years price competition between imported and domestic sheet glass in the U.S. market has sharpened. The domestic producers

increasingly have had to offer to meet, in whole or in part, lower prices of imported glass in order to try to retain sales. The resultant harmful impact of the sharp price competition on the profits of the domestic producers is evident. The domestic producers' aggregate net operating profits earned on their sheet-glass operations in 1967 and 1968, as well as the ratios of those profits to net sales, averaged only a third of those in 1964 (table 12). Aggregate profits in 1967 were the lowest since 1962, and those in 1968, although improved, were still materially below those of earlier years. The aggregate net profits earned by the domestic producers on sales of window glass, and the ratio of those profits to net sales, declined steadily from 1964 to 1967; they remained at a low level in 1968. The deteriorating economic health of the sheet-glass industry has also been reflected in corporate decisions to shut down production facilities. One domestic sheet glass plant was put on a standby basis in 1968, reopened in 1969, and then closed permanently in October 1969. It was announced that another producer would shut down a furnace at an Oklahoma plant on December 1, 1969, requiring layoffs of more than 200 workers. The outlook for the immediate future, moreover, is clouded because the steady decline in residential construction in 1969 inevitably will result in declining consumption of window glass.

U.S. imports of window glass have accounted for an increasing share of the competition given domestic producers by imports of sheet

glass. During 1964-66, when escape-action rates were applicable to all imports of sheet glass, imports of window glass measuring not over 100 united inches accounted for about 47 percent of the total quantity of sheet glass imported. In 1967, the first year that the modified escape-action rates were applicable to such window glass, and the remaining sheet glass imports were dutiable at the lower trade-agreement rates, imports of such window glass amounted to 51 percent of the total quantity of sheet glass imports. In 1968, such window glass amounted to nearly 60 percent of the total quantity of sheet glass imported.

Major increases in world capacity to produce sheet glass in recent years portend more intensive competition in both the U.S. and foreign markets. Countries that heretofore have been significant exporters of sheet glass (e.g., Belgium, France, and Germany) can be expected to intensify their sales efforts in the United States, particularly as various less-developed countries become increasingly self-sufficient. Italy, long a major importer of sheet glass, was the third largest source of U.S. imports in 1968. Israel, which completed its first sheet glass plant in 1965, was the seventh largest source of U.S. imports in 1968. Since 1967 factories have been completed in Sweden, Denmark, Colombia, and Canada. Additional plants are currently under construction or planned in Iran, Malaya, and Hungary. In view of rapidly rising world capacity to produce sheet glass, a further reduction in the rates of duty would accelerate its importation into the United States.

A reduction in duty on window glass at this time would be particularly harmful to the domestic industry because of its vulnerability to increasing competition from float glass. Eight new U.S. float glass plants have already gone into production; five more are under construction or projected. Canada, which recently completed a float glass plant, now is constructing a second plant; Canadian facilities have capacities in excess of home market demands. Plants have been completed or are nearing completion in Belgium, Japan, Spain, Czechoslovakia, and the U.S.S.R. It is likely that this expansion in world capacity to produce float glass will generate increased competitive pressures that will accelerate the rate at which such glass displaces sheet glass. Accordingly, the maintenance of satisfactory levels of operation by domestic producers of sheet glass will become increasingly difficult.

The modified duties retained in January 1967--i.e., the rates of duty of concern in this investigation--afforded relief primarily to plants and workers in Appalachia, where the production of window glass is concentrated. In view of the continuing depressed conditions in that area, it is imperative that these duties be maintained until economic conditions in these communities have materially improved.

In view of the foregoing considerations, we are of the opinion that the domestic industry producing sheet glass should not be confronted with a further loss of the relief once accorded under section 7 of the Trade Agreements Act.

## Statement of Commissioner Thunberg

The Tariff Commission is obliged to advise the President of the probable economic effect on the domestic sheet glass industry of the termination of the remaining escape-action increases in rates of duty applicable to window glass. Window glass accounts for roughly three-fifths of the U.S. production and consumption of sheet glass. The reduction in duty that will ensue if the presently applicable increases are not extended will be equivalent, on the average, to nearly 8 percent of the export value of the imported window glass (or about 4 percent of the published prices of imported window glass in the U.S. market).

The U.S. sheet glass industry operates under conditions of fluctuating demand for its products. The U.S. demand for sheet glass is largely derived from domestic building construction and motor vehicle production. Changes in the level of activity in those industries are promptly reflected in the demand for sheet glass; concurrent declines or increases in construction and automobile output can result in sharp changes in sheet glass consumption.

From 1965 through 1967, the domestic sheet glass industry was adversely affected by steadily declining demand. In 1964, the U.S. consumption of sheet glass was at a high level; apparent consumption in that year exceeded 2 billion pounds--only the second time in history that it had surpassed that mark. Domestic shipments of

sheet glass and the aggregate profits of the industry reflected the buoyant market of that year. Then, the U.S. demand for the products of the sheet glass industry declined as residential construction dropped steadily from 1964 through 1967 and automobile production, though rising in 1965, declined in the 2 years thereafter. By 1967 the annual consumption of sheet glass in the United States was 15 percent smaller than it had been in 1964; the domestic producers' shipments and their aggregate profits, responding to the depressed demand, also declined.

During these years, the domestic sheet glass industry continued to face substantially increased competition from domestic plate and float glass and, to a lesser degree, from imported window glass. Such competition was due in significant part to the pricing policies of the domestic producers which kept the price of sheet glass rising ahead of wholesale prices in general and prices of plate and float glass in particular. The BLS wholesale price index (1957-59=100) of window glass, for example, was 120 in 1967; the prices of heavy sheet glass had about kept step with those of window glass. The BLS index of prices of plate (and float) glass, however, had declined to 86. The resultant narrowing of the differential between the prices of sheet glass, on the one hand, and those of plate and float glass, on the other, strongly encouraged the substitution of plate and float

glass for sheet glass--a substitution which has continued to exert marked competitive pressure on the domestic sheet glass industry. In addition, the substantial price increases instituted by the domestic producers of sheet glass made the U.S. market especially attractive to foreign sellers, and encouraged efforts by foreign producers to sell window glass and other sheet glass in the United States.

In 1968 and the first half of 1969, the demand for sheet glass in the United States rebounded. U.S. residential construction in 1968 rose 15 percent, and motor vehicle output jumped by nearly 20 percent. U.S. consumption of sheet glass in 1968 almost reached the record level of 1964; consumption, moreover, was 10 percent larger in the first half of 1969 than in the corresponding period of 1968. The recovery in demand stimulated domestic output, and profits in the sheet glass industry improved. U.S. production increased--slowly in 1968 and sharply in the first half of 1969. Prices were increased markedly; the BLS price index for window glass was 138 in mid-1969, compared with 120 in 1967. The number of man-hours worked in the production of sheet glass declined slightly in 1968, as average annual output per man-hour in the industry jumped by nearly 10 percent. Aggregate operating profits in 1968 were double those in 1967.

New technological developments in the drawing of sheet glass recently announced by one of the major producers may greatly enhance the competitiveness of sheet glass in flat glass markets. If the

claims for the new process are borne out in the market place, sheet glass would successfully encroach on markets for high-quality glass of one-eighth inch and thinner now supplied largely by plate and float glass. A significant expansion of domestic sheet glass output could follow.

Under current conditions, then, the effect of the reduction in the import duties on window glass would appear to be slight. The duty reduction by itself is not large enough to cause any adjustment in the pricing policies of domestic producers, other things being equal. The domestic sheet glass industry should thus adjust with little difficulty to the slightly greater competitive pressures that would result from the duty change.

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The requirements of the statute are technically satisfied by an examination based on a ceteris paribus assumption, such as the foregoing, of the effect on the industry of a termination of increased rates of duty. In the usual case the assumption that everything else remains constant is essential to reasoned analysis as well as to satisfaction of the statute, which is concerned solely with the economic effect of a duty change and not with the effects of any other probable developments occurring simultaneously but independently.

Although the ceteris paribus assumption is a methodological necessity imposed by the statute, there are presently imminent certain developments which, if sustained, will affect directly the sheet glass industry and which I believe should be made explicit in order that the probable economic effects of the duty reduction by itself may be considered in the context of the emerging economic scene. These imminent developments are especially relevant because, like the duty reduction (should it occur), they flow from public policy undertaken in the national interest despite the fact that their effect will fall most heavily on certain individual sectors of the economy.

Specifically, fiscal and monetary measures undertaken to counter inflationary price increases are falling most heavily on the construction industry and especially on residential housing. 1/ The emerging decline in housing starts is likely to continue as long as anti-inflationary policies keep mortgage money scarce. In addition, high taxes and interest rates appear to be depressing purchases of automobiles. 2/

Declining demand from the housing and automobile industries for sheet glass would cause competition among domestic producers to become more intense. By itself, and assuming that the degree and

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1/ For the 6-month period ending in October 1969, home construction was 14 percent below the rate for the previous 6 months and 4 percent below the average for the comparable period in 1968.

2/ Production schedules for the fourth quarter of 1969 reflect a 12 percent drop below that of the similar period in 1968.

duration of the decline in demand are moderate, it would be likely to result in a smaller volume of sales, with no depressing effect on prices. If at the same time import duties on window glass were to be reduced by 8 percent of export value, a further intensification of competitive pressures from imports could exert a downward pressure on prices. Because the demand for window glass is price inelastic, lower prices would be likely to result in a further reduction of revenues from sales of window glass. I would note that such a price decline, even if relatively small, would aid anti-inflationary measures, would also be primarily a result of such measures, but would cause hardship to certain producers in the sheet glass industry.

Statement of Commissioner Leonard,
Concurred in by Commissioners
Clubb and Newsom

In this investigation conducted under Section 351(d)(3) of the Trade Expansion Act of 1962, 1/ the Tariff Commission is to advise the President of its judgment as to the probable economic effect on the domestic sheet glass industry of the termination on December 31, 1969, of the modified escape-action rates of duty on certain window glass.

1/ 76 Stat. 900, P.L. 87-794.

Window glass is one of three categories of sheet glass manufactured in the United States on common production facilities in plants devoted almost wholly to the manufacture of sheet glass. Although the modified escape-action rates apply only to certain window glass, 1/ the impact of their removal must necessarily be judged by the effect on the sheet glass industry.

Sheet glass is produced in the United States by 6 firms at 13 establishments. Twelve of the establishments are engaged exclusively, or almost so, in the manufacture of sheet glass, and window glass is produced at each. Indeed, window glass accounted in 1968 for three-fourths or more of the output of sheet glass in 8 of the 12 establishments. The effect of the removal of the modified escape-action rates will bear primarily on these 8 establishments.

Since the statute calls for a judgment as to what is likely to occur in the future, it may be helpful to observe what occurred in the past in the sheet glass industry, particularly with reference to window glass.

Effects of the 1967 actions

The January 11, 1967 removal of the escape-action rates on heavy sheet glass reduced the duties applicable to such glass by

1/ For the purpose of this statement, glass weighing over 16 ounces but not over 28 ounces per square foot is referred to as window glass. The modified escape-action rates of duty are applicable to window glass measuring not over 100 united inches. Separate data on the domestic production of window glass measuring over 100 united inches are not available; however, such glass represents a small part of the domestic output of window glass. In 1968 imports of window glass measuring over 100 united inches amounted to 7 percent of the total window glass imported in that year.

about 56 percent; on the same date, the partial removal of the escape-action rates on window glass reduced the duties on such glass by about 16 percent. 1/ In 1967, following these reductions, most-favored-nation imports of heavy sheet glass were 1 percent larger than in 1966; window glass imports were 9 percent larger. Yet, the seeming incongruity of a smaller increase in imports of the type of glass on which there had been a larger duty reduction can perhaps be explained by the fact that the demand for heavy sheet glass 2/ had decreased, due to the decline in the production of motor vehicles, more than the demand for window glass. Thus domestic production of heavy sheet glass decreased 22 percent from 1966 to 1967 while domestic production of window glass fell off 9 percent in the same period. This permitted imports of both types of glass to supply a larger share of the U.S. market in 1967 than in 1966; heavy sheet glass penetration increased from 26 percent to 31 percent; window glass from 22 percent to 24 percent.

Shipments.--The decline in domestic shipments of window glass between 1964 and 1967 was not shared equally by all 5 domestic producers. 3/ Shipments of three producers (including the largest

1/ Thin sheet glass (glass weighing over 4 ounces but not over 16 ounces per square foot), which accounts for only 2 percent of annual U.S. consumption, is not discussed here because the drastic decline in imports and domestic shipments in 1967 was the result of the substitution of window glass for thin sheet glass in the manufacture of storm windows.

2/ Heavy sheet glass is glass weighing over 28 ounces per square foot.

3/ The sixth domestic sheet glass firm does not produce window glass.

U.S. producer) increased from 1964 to 1967, and again in 1968. Two other producers' shipments declined from 1967 to 1968. Total domestic shipments of window glass were 5 percent larger in 1968 than in 1967.

Sales and profits.--The sales and profit positions of the small producers do not imply a deteriorating position in recent years when imports increased. The two smallest producers earned relatively low margins of profit over the entire period 1964-68-- * * * . Furthermore, these small firms both increased their shares of domestic production from 1964 to 1968-- * * * . Thus, the two firms, which from 1964 to 1966 could be considered marginal, principally as a result of labor difficulties, substantially improved * * * . 1/

However, by 1967, when the firms had recovered, two other firms reported losses. In 1968 one firm reported an operating loss. For the period 1964 through 1968, the net operating profit as a percent of sales for the entire industry declined from 12.6 percent to * * * .

Use of productive facilities.--Since the duty cut in 1967, the productive capacity of the domestic sheet glass industry has increased

1/ These two firms produce only sheet glass, predominately window glass.

slightly. The capacity of one furnace was increased, principally to improve productivity, and two furnaces that had been closed prior to 1964 were reactivated. These increases were partially offset, however, by decreases resulting from the closing of American Saint Gobain Corporation's Arnold, Pennsylvania plant, and the recent announcement that PPG Industries intends to halve the capacity of its Henryetta, Oklahoma plant. This latter plant shipped glass to the West Coast, a market that PPG Industries now supplies from the plant it constructed in California in 1967.

Employment.--The annual number of man-hours worked by production and related workers on the manufacture of sheet glass declined from 1965 to 1967; it also declined slightly in 1968, although U.S. output of sheet glass rose in that year. The Arnold plant employed about 600 production workers (8 percent of the labor force in the industry) before being placed on standby; more than 200 workers will be affected by the reduced operations at Henryetta.

Prices.--Quoted prices of both domestic and imported window glass have been upward since the escape-action rates were imposed in 1962. Although the rates of increase were relatively close, the rate of increase for imported window glass was higher. For example, the price differential between published prices for imported 18-ounce (single strength) window glass and domestic 19-ounce window glass declined from 8.7 percent in May 1964 to 5.5 percent in May 1969; that for

imported 19-ounce and domestic 19-ounce declined from 5.9 percent to 2 percent during the same period. The price differential between imported and domestic double strength window glass declined irregularly from 5.7 percent in May 1964 to 2.1 percent in May 1969.

Probable effects of the termination of the modified escape-action rates

With this description of what has happened in the industry, observations are in order as to what would happen should the modified escape-action rates be permitted to lapse at the end of this year. First, it should be noted that the demand for window glass as well as sheet glass is a derived demand based principally on the fluctuating housing construction market in the United States and to a smaller extent on the volume of automobile production. The demand for sheet glass is expected to be static or to grow slowly. Substitutes for sheet glass, principally float glass, will become increasingly available. However, most of the float glass will be provided by U.S. companies producing sheet glass, although from different plants than those in which sheet glass is produced. Some float glass will also be supplied from foreign plants. Moreover, the substitution of float glass for sheet glass, particularly window glass, may be more limited than has been anticipated if a newly announced development in the production process for sheet glass is an economic success. 1/

1/ Recently (June 1969) a domestic sheet glass producer announced that by modifying the glass drawing process it is able to produce sheet glass 1/8 inch and less in thickness that is competitive in quality and cost with float glass. (One-eighth inch glass is comparable in weight and thickness with double strength window glass.)

Shipments.--Domestic shipments of window glass face stiff competition in the U.S. market from imported glass under any foreseeable conditions. 1/ Based on what has occurred in the past in this industry, if the U.S. market for sheet glass is static or declining, domestic shipments will decline and may well supply a reduced share of the market; if the U.S. demand for sheet glass increases, domestic shipments will likely increase, although they will probably supply only a part of any such increase.

Sales and profits and use of productive facilities.--The effect on each firm within the industry would vary, as have the effects of past changes in duty. The duty cut would lead probably to lower profits or additional losses for some firms, possibly to the shut down of additional furnaces and the concentration of domestic production in fewer plants; and perhaps to a lower manufacturing employment per unit of output. It could also lead to some diversification by certain firms.

Employment and productivity.--The downward trend in employment of the past 5 years should continue in the sheet glass industry; however, productivity should improve as the domestic industry concentrates production in the more efficient plants. For example, although production in 1968 was 3 percent less than in 1964, employment and man-hours worked were 19 and 14 percent less, respectively.

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1/ Exports amount to less than 1 percent of annual domestic shipments of sheet glass.

The extension of the modified escape-action duties beyond the October 1967 termination benefited particularly the depressed areas of Appalachia. Employment conditions are now considerably different in that area. As noted in the Commission's statement of September 1967, 7 percent of the civilian labor force in Clarksburg, West Virginia was unemployed at that time. In August 1969, the unemployment rate in Clarksburg was only 3 percent.

Prices.--The duty reductions that will automatically take effect on December 31, 1969, unless the modified escape-action rates are extended by the President, amount to about 8 percent of the export value of the imported window glass. The duty reductions would be equivalent to 1/2 cent per pound (55 cents per 100 square feet) on 18-ounce window glass, 0.4 cent per pound (48 cents per 100 square feet) on 19-ounce window glass, and 0.4 cent per pound (64 cents per 100 square feet) on double strength window glass. If the full duty reductions are passed on to the purchaser, the differential in published prices between domestic and imported window glass would widen by about 4 percent of the market price. 1/ Because window glass accounts for over 60 percent of annual shipments of sheet glass, such reductions in the duty and the resulting increases in the price differentials would be significant to the sheet glass industry.

1/ The differentials in published prices between imported and domestic window glass would increase from 5.5 percent to 9.7 percent for 18-ounce versus 19-ounce, from 2 percent to 5.9 percent for 19-ounce versus 19-ounce, and from 2.1 percent to 5.9 percent for double strength window glass.

## Description of Products

Sheet glass is one of four principal types of flat glass--the others being cast or rolled, plate, and float glass. Sheet glass is a transparent flat glass product made by machine drawing. It has a smooth fire polished surface; it may be either clear or colored. 1/ For the purposes of this report, sheet glass is divided into three thickness (weight) categories:

(1) Glass weighing over 4 ounces but not over 16 ounces per square foot, hereinafter referred to as thin sheet glass. It is used for picture glass, microscope-slide glass, photographic dry plates, and small mirrors. It is also used to a limited extent in small-size and/or low-quality storm windows.

(2) Glass weighing over 16 ounces but not over 28 ounces per square foot, hereinafter referred to as window glass. It is used chiefly for glazing windows, doors, and storm sash in residential construction. Window glass for such uses is subdivided chiefly into single strength glass weighing 18 or 19 ounces per square foot and double strength glass weighing 24 or 26 ounces per square foot; the two weights in each strength (e.g., 18 or 19 ounce glass) are used interchangeably. Window glass is also used in making non-automotive laminated glass (safety glass consisting of sheet glass with a plastic interlayer), pinball machine covers, and double-glazed insulating glass.

(3) Glass weighing over 28 ounces per square foot, hereinafter referred to as heavy sheet glass. It is used to glaze large openings such as glass patio doors and the glass panels frequently found adjacent to them. Heavy sheet glass is often tempered (specially toughened) and, in that form, is used extensively in the side and rear windows of many automobiles.

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1/ Sheet glass is identified in the Tariff Schedules of the United States (TSUS) as "drawn or blown flat glass, in rectangles, weighing over 4 ounces per square foot". Blown glass, which is made by hand production methods, is now virtually obsolete.

The modified escape-action rates scheduled to terminate at the close of 1969 apply to window glass measuring not over 100 united inches. 1/ Window glass usually accounts for over 60 percent of the annual U.S. consumption of sheet glass. The bulk of the window glass consumed measures 100 united inches or less. Window glass over 100 united inches is ordinarily used only in storm sash and other fixed installations; for these uses, however, heavy sheet glass is usually preferred to provide the rigidity needed in glass lights (pieces) of that size.

In the trade window glass is subdivided chiefly into single strength glass weighing 18 or 19 ounces per square foot and double strength glass weighing 24 or 26 ounces per square foot. The two weights in each strength (e.g., 18 or 19 ounce glass) are used interchangeably. Some so-called "lami" glass (22 ounces) is produced; it is used to manufacture laminated safety glass. Single strength glass usually accounts for about 70 percent of annual U.S. consumption of window glass.

The three other principal types of flat glass, which are not covered by this report, are described briefly below:

(1) Cast or rolled glass, which is also known as pattern glass, is a translucent flat glass (sometimes containing wire netting) that has irregularities impressed on its surfaces by the rollers used to form the glass.

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1/ The number of "united inches" is the sum of the length and width of a rectangle of sheet glass.

(2) Plate glass is rolled glass that has been ground and polished. The grinding and polishing make the glass transparent and render its surfaces virtually plane and parallel, thereby eliminating the distortion found, in various degrees, in sheet glass. Because of the virtual absence of distortion, plate glass commands a considerably higher price than sheet glass.

(3) Float glass is transparent flat glass that has plane and parallel surfaces virtually comparable to those of plate glass. The parallel surfaces of float glass, however, are obtained by floating a layer of molten glass over molten metal rather than by physical grinding and polishing.

In recent years direct competition between the various types of flat glass has occurred in several uses. Plate, float, and sheet glass have all been used in automobile side and rear windows, mirrors, and table and desk covers. The selection of one type of flat glass over another is based both on quality and price; price is the predominant factor in many instances, particularly where small surface areas are involved. Most of the competition of plate and float glass with sheet glass, however, has affected heavy sheet glass not window glass. Althou 1/8 inch plate and float glass are comparable in weight to double streng window glass, the substitution of such plate or float glass for double strength window glass has been negligible. In June 1969 a domestic shee glass manufacturer (PPG Industries) announced that by modifying the glas drawing process it is able to produce sheet glass 1/8 inch and less in thickness that is competitive in quality and cost with float glass. The impact of this new development remains to be observed.

## U.S. Customs Treatment

Sheet glass weighing over 16 ounces but not over 28 ounces per square foot (window glass) and measuring not over 100 united inches is currently dutiable at modified escape-action rates 1/ proclaimed by the President on January 11, 1967. All other sheet glass is currently dutiable at trade-agreement rates restored by the President on January 11, 1967--i.e., the rates that had been in effect immediately preceding the imposition of the escape-action increases in 1962. 2/ The trade-agreement rates, the initial escape-action rates, and the current rates are shown in table 1.

The rates of duty currently applicable to ordinary window glass measuring not over 100 united inches, imported from countries eligible to receive most-favored-nation (MFN) tariff treatment, 3/ are specific rates of either 1.1 cents or 1.5 cents per pound; the rate imposed depends upon the surface area of the light of glass entered. Colored or special window glass, imports of which are small, is subject to the same specific rates as ordinary glass plus 2.5 percent ad valorem.

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1/ These rates are provided in items 923.31-923.75 of part 2A of the appendix to the TSUS. In this report the term modified escape-action rates will be used to describe the currently applicable rates of duty on window glass measuring not over 100 united inches, which were proclaimed by the President on Jan. 11, 1967.

2/ These rates are provided for in TSUS items 542.11-542.25, 542.37, 542.42-542.67, and 542.77-542.98. Before Aug. 31, 1963, the tariff treatment for imported sheet glass was provided for under par. 219 of the Tariff Act of 1930 (with an additional duty if colored or processed imposed under par. 224). With the implementation of the TSUS on Aug. 31, 1963, the nomenclature was modified slightly to bring the tariff provisions into closer conformity with trade practice; such modification resulted in slight changes in some rates of duty.

3/ Sheet glass imported from countries or areas designated as Communist dominated or controlled is subject to higher rates of duty (shown in the "statutory rate" column of table 1) than that imported from countries eligible for MFN tariff treatment.

The average ad valorem equivalents of the original escape-action rates applicable to window glass measuring not over 100 united inches as well as those of the modified escape-action rates and the trade-agreement rates scheduled to become effective at the close of 1969, are as follows (based on imports in 1968):

| Item | Average ad valorem equivalent | | |
|---|---|---|---|
| | Escape-action rate | Modified escape-action rate | Trade-agreement rate |
| | Percent | Percent | Percent |
| Window glass measuring in united inches-- | | | |
| Not over 40: | | | |
| Ordinary | 21.9 | 18.6 | 11.8 |
| Colored or special | 4.5 | 4.2 | 3.6 |
| Over 40 but not over 60: | | | |
| Ordinary | 27.2 | 25.5 | 15.3 |
| Colored or special | 7.0 | 6.7 | 5.0 |
| Over 60 but not over 100: | | | |
| Ordinary | 26.7 | 21.1 | 15.5 |
| Colored or special | 10.0 | 8.4 | 6.8 |

The modified escape-action rates applicable to window glass measuring not over 40 united inches are 15 percent lower than the initial escape-action rates imposed before January 11, 1967; those applicable to window glass over 40 but not over 60 united inches are 6 percent and those applicable to window glass over 60 but not over 100 united inches are 21 percent lower than the escape-action rates. The termination of these modified escape-action rates on December 31, 1969 would result in further reductions of 36, 40, and 27 percent, respectively.

## U.S. Producers

Sheet glass is currently being produced in the United States by 6 firms at 13 establishments. Twelve of the establishments are engaged exclusively, or almost so, in the manufacture of sheet glass; one produces mostly float glass, but some sheet glass (other than window glass). Window glass is produced at each of the 12 "sheet glass" establishments; the output of window glass accounted in 1968 for three-fourths or more of the output of sheet glass in 8 of the 12 establishments. In February 1968 the production of sheet glass at the Arnold, Pa., plant of the American Saint Gobain Corporation was terminated. The plant, which is not counted among the 12 establishments, was reopened in June 1969, but closed again in October 1969.

Three of the 5 firms that own the 12 "sheet glass" establishments (PPG Industries, Inc. (PPG), Libbey-Owens-Ford Co. (LOF), and American Saint Gobain Corp. (ASG)), are multiproduct corporations; they produce products other than sheet glass almost exclusively in establishments other than those in which window glass is produced. The other two firms (Rolland and Harding Glass Companies, operating as the Fourco Glass Company) produce little else than sheet glass. 1/ * * * .

1/ Small quantities of sheet glass are tempered at 1 of the 3 plants operated by Fourco.

Four of the 12 establishments producing window glass are located in West Virginia, 2 in Oklahoma, and 1 each in Arkansas, California, Illinois, Louisiana, Ohio, and Pennsylvania. The plant that was closed is located in Pennsylvania.

The theoretical annual capacity of U.S. plants to produce sheet glass increased from 1.4 million short tons in 1964 to 1.5 million short tons in 1969. The establishment of a new plant in California accounted for the major share of the increase in capacity; however, modifications to existing facilities to improve product quality and productivity also resulted in an increase in capacity. Regularly occurring furnace shut-downs for repair and maintenance were equivalent to 5 percent of plant capacity in 1964 and 10 percent, in 1968.

Thirty sheet glass furnaces were available for production on June 30, 1969; 26 were used to produce glass for sale and one was operated for research purposes. Between 1965 and 1967, three sheet glass furnaces were dismantled. 1/ Data on the number of furnaces that produced window glass are not available.

## U.S. Consumption

### Sheet glass

Changes in annual U.S. consumption of sheet glass have generally followed closely changes in activities in the industries from which the demand for sheet glass is derived. New building construction has been the principal consuming industry (accounting for some 60 percent

1/ One of the dismantled furnaces was converted to the production of float glass.

of consumption); the automobile industry has been a smaller, but significant, user of sheet glass, principally heavy sheet glass.

The apparent annual U.S. consumption of sheet glass declined steadily from 1964 through 1967, decreasing from 2,003 million pounds to 1,698 million pounds (table 2). In the latter year consumption, which was about 15 percent lower than in 1964, was at the lowest annual level since 1961. The decline in consumption was attributable primarily to a downturn in residential construction and automobile production during most of those years (table 3). In 1968 U.S. consumption of sheet glass increased nearly to the 1964 level reflecting large increases that occurred concurrently in both residential construction and automobile production. Apparent U.S. consumption of sheet glass was about 10 percent higher in the first half of 1969 than in the corresponding period of 1968. Although the annual rate of new housing starts declined steadily from month to month in 1969, the aggregate of residential construction was at a high level in the first half of the year; automobile production, moreover, was not far below the 1968 rate.

Window glass

Window glass accounted for 60 percent by weight of the apparent consumption of sheet glass during the period 1964-68 (table 4). The apparent annual U.S. consumption of window glass declined moderately (about 5 percent) from * * * in 1964 to * * * in 1967; it increased * * * in 1968.

In 1964-67 residential construction in the United States, the principal determinant of window glass consumption, declined steadily. The increased use of window glass by industries not directly geared to residential construction (i.e., lighting fixtures and appliances) and the influence of replacement demand apparently moderated somewhat the effects of the reduced demand for residential construction. The sharp upturn in consumption of window glass in 1968 corresponded closely with the increase in residential construction during that year (table 5). The U.S. consumption of window glass was nearly 8 percent larger in the first half of 1969 than in the corresponding period of 1968, reflecting high construction activity early in the year; however, the severe decline in the annual rate of new housing starts during the year was expected to result in lowered consumption of window glass in the second half of 1969. 1/

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

### Sheet glass

Shipments of sheet glass by U.S. producers in 1968 (1,353 million pounds) were about 8 percent higher than in 1967 (1,248 million pounds),

1/ Private housing starts during the first half of 1969 totaled 782,700 units--an increase of 7 percent from the 732,500 units started during the comparable period of 1968. Private housing starts during the second half of 1969 are predicted to be substantially lower than during the comparable period of 1968.

but lower than in any other year since 1961. The increase in shipments in 1968 resulted from a sharp rise in domestic demand for sheet glass. The domestic consumption of sheet glass, however, rose considerably more in 1968 than shipments by domestic producers, and the share of the market supplied by the domestic producers declined. During January-June 1969, domestic shipments of sheet glass--738 million pounds--were about 19 percent higher than those in the corresponding period of the preceding year; the increase in shipments was somewhat larger than the increase in domestic consumption. In 1968 the U.S. producers' share of the market was 68 percent, the lowest on record. During the period January-June 1969, the producers' share of the market was 73 percent, comparable to the 1967 ratio (table 2). The value of the U.S. producers' shipments of sheet glass 1/ declined annually from $143.9 million in 1964 to in 1967, then increased * * * in 1968; * * * .

Variations in the shipments of sheet glass by U.S. producers (including intracompany transfers) have generally corresponded closely with changes in U.S. production. Yearend inventories, nevertheless, increased from 132 million pounds on December 31, 1963 to 180 million pounds on December 31, 1965, then declined to 128 million pounds on

1/ Does not include data on the value of shipments (consisting preponderantly of intracompany transfers) of sheet glass by Ford Motor Co.

December 31, 1967. Inventories on December 31, 1968, amounted to 131 million pounds. During each of the years, yearend inventories were equivalent to approximately 10 percent of annual shipments of sheet glass.

Window glass

U.S. producers' shipments of window glass in 1968 * * * --5 percent greater than * * * during 1967, but virtually the same as the average annual shipments during 1964-67 (table 4). The rise in shipments in 1968 resulted from the strong domestic demand for window glass. The share of apparent consumption of window glass supplied by domestic producers, however, declined from 76 percent in 1967 to 69 percent in 1968. Shipments of window glass during January-June 1969 * * * were 18 percent higher than those during the corresponding period of 1968. The increase in 1969 may be attributed to both increased domestic consumption and a decline in U.S. imports of window glass (see the following section); domestic producers supplied 76 percent of domestic consumption in the first half of 1969, a share equivalent to that of 1967.

The value of the U.S. producers' shipments of window glass declined from * * * in 1964 to * * * in 1966, then increased

annually to * * * in 1967 and * * * in 1968. Three companies, including two that experienced lengthy strikes in 1964, reported higher sales in 1968 than in 1964; the other two producers reported substantially lower sales.

Variations in the domestic production of window glass have corresponded closely to domestic producers' shipments of such glass, except in 1967 when production increased although shipments declined. Data on inventories of window glass are not available.

## U.S. Imports

Annual U.S. imports of sheet glass rose sharply in 1968, both in quantity and relative to domestic consumption. Imports of sheet glass in that year were more than a third larger than in 1967; imports in 1968 were equivalent to 32 percent of apparent U.S. consumption, compared with 27 percent in 1967. In the first half of 1969, U.S. imports of sheet glass were 10 percent smaller than in the corresponding period of 1968, but about 35 percent larger than in the first half of 1967. Similarly, U.S. imports of window glass, most of which have been subject to the modified escape-action rates of duty, increased sharply in 1968 and then declined in the first half of 1969; imports of window glass accounted for about three-fifths of U.S. imports of sheet glass in 1968 and the first half of 1969 (table 6). Belgium, West Germany, Italy, Japan, the United Kingdom, and Taiwan were the major suppliers of U.S. imports of both sheet glass and window glass.

The preponderant share of sheet glass imported into the United States in recent years has been dutiable at MFN rates. Sheet glass entered from Communist dominated countries at the full rates of duty generally has accounted for 10 percent or less of annual U.S. imports of that product. Imports at MFN rates and at full rates are discussed in the following sections.

Imports at MFN rates.--Annual U.S. imports of sheet glass at MFN rates, which had fluctuated within a narrow (13 percent) range in 1964-67, increased substantially in 1968 (table 2 ). MFN imports of sheet glass in that year (582 million pounds) were about 40 percent larger than average annual imports at MFN rates in 1964-67 (417 million pounds). In the first half of 1969, U.S. imports of sheet glass at MFN rates were about 10 percent smaller than in the corresponding period of 1968, but considerably larger (39 percent) than in the first half of 1967. U.S. imports of sheet glass at MFN rates were equivalent to 30 percent of apparent U.S. consumption in 1968, compared with 20 percent to 25 percent annually in the years 1964-67; the corresponding ratio in the first half of 1969 was 25 percent.

Annual U.S. imports of window glass at MFN rates, although slightly more volatile than those of sheet glass, have varied similarly to imports of sheet glass at MFN rates (table 4). MFN imports of window glass in 1968 were about 50 percent larger than in 1967 and and about 66 percent larger than average annual imports in 1964-66.

Indeed, the increase in annual imports of window glass at MFN rates accounted for the bulk (more than 70 percent) of the increase in MFN imports of sheet glass. In the first half of 1969, imports of window glass at MFN rates were 18 percent smaller than in the corresponding period of 1968, but still considerably larger than in the first half of 1967. U.S. imports of window glass at MFN rates were equivalent to 28 percent of apparent U.S. consumption of window glass in 1968, compared with 21 percent in 1967 and 19 percent in 1964-66. The corresponding ratio in the first half of 1969 was 22 percent.

Annual U.S. imports of sheet glass and window glass, as well as annual U.S. production of these products, generally vary directly with changes in U.S. consumption. As indicated in an earlier section, apparent U.S. consumption of sheet glass and window glass in 1968, influenced by marked increases in residential construction and motor vehicle production, increased strikingly. U.S. imports of sheet glass and window glass at MFN rates, and shipments by U.S. producers of these products, also increased. The increases in imports accounted for the bulk of the increased consumption--two-thirds of the increase in sheet glass and four-fifths of that in window glass. In the first half of 1969, apparent U.S. consumption of sheet glass and window glass were materially larger than in the corresponding period of 1968; MFN imports of those products, however, were smaller in January-June 1969, and shipments by U.S. producers were much larger than in January-June 1968. U.S. imports of sheet glass and window

glass were affected by a lengthy dock strike at Atlantic and Gulf ports early in 1969. 1/

In recent years about four-fifths of the U.S. imports of window glass has consisted of single-strength glass, and about one-fifth, double-strength glass. Of the annual imports of single-strength glass, about four-fifths has been 18-ounce glass, and about one-fifth, 19-ounce glass. Similarly, the bulk of the imported double-strength glass is believed to have been the lighter version (i.e., 24-ounce, rather than 26-ounce).

U.S. imports of sheet glass and window glass at MFN rates originate chiefly in West European countries, Japan, and Taiwan (table 7). In recent years Belgium has been the principal supplying country. West Germany, Japan, and the United Kingdom ranked as major suppliers in each of the years 1964-68. Annual U.S. imports from Italy and Taiwan increased greatly in 1964-68, both countries being major suppliers of sheet glass and window glass in 1968.

Imports at full rates.--Annual U.S. imports of sheet glass from Communist dominated countries, which enter at full rates of duty, were about 43 percent larger in 1968 than in 1964. Imports of window glass from such countries in 1968 were more than double those in 1964. In 1968 imports of sheet glass at full rates of duty accounted for about 7 percent of total U.S. imports of that product, while imports of

1/ Imports had been affected by a dock strike in 1965, while domestic production was affected by major strikes in 1963 and 1966.

window glass at full rates accounted for about 10 percent of imports of that product. In recent years annual imports of sheet glass (and window glass) at full rates have been equivalent to 2 to 3 percent of U.S. consumption. The U.S.S.R., Czechoslovakia, and Rumania have been the chief supplying countries.

## Marketing Channels and Prices

### Marketing channels

The marketing of window glass in the United States, like that of many products, is characterized by the use of multiple distribution channels. The main channels through which window glass, both domestic and imported, is distributed are as follows--listed in the approximate order of their importance:

1. Directly from domestic or foreign producers to manufacturers, fabricators, processors, and glazing contractors.

2. Through independent glass distributors who, in turn, serve manufacturers, fabricators, processors, glazing contractors, jobbers, and retailers.

3. Through a manufacturer-owned merchandising system (domestic glass only), which markets at all distribution levels, from that of the independent glass distributor to that of the retailer.

The U.S. producers of window glass sell it to so-called recognized factory buyers--independent glass distributors, fabricators (such as sash and door manufacturers), processors (such as temperers and

laminators), and glazing contractors. The recognized factory buyers, selected according to the judgment of the individual producers, are the only concerns that can buy window glass directly from the factory. Other concerns desiring to purchase window glass, even in carload lots, must order their glass, at correspondingly higher prices, from distributors who are recognized factory buyers. PPG Industries, Inc., besides selling to recognized factory buyers, distributes a substantial part of the window glass it produces through its own merchandising outlets. The outlets comprise an integrated system of distribution centers (warehouses) and service branches located throughout the United States. The outlets serve buyers at all distribution levels, and thus are in direct competition with the entire independent distribution system. The centers also service the factory sales accounts of the direct factory buyers.

Most of the importers of window glass are distributors, jobbers, manufacturers, fabricators, and contractors--predominantly firms that are also recognized factory buyers of domestic glass. The importers place their orders for foreign glass with U.S. sales agents of the foreign glass manufacturers, who in turn forward the orders to the foreign manufacturers; some sales agents also import glass for their own account for resale, thereby acting as distributors. Distributors who import window glass resell it through customary distribution channels, i.e., to jobbers, manufacturers, fabricators, contractors,

and retailers. Manufacturers, fabricators, and contractors who import glass use it themselves in glazing or manufacturing.

Under the existing distribution system, various domestic users of window glass may have access to supplies of domestic glass only at different levels of distribution. One user of window glass, for example, may qualify as a direct factory buyer, while a competitor may not. The former thus can purchase glass at factory prices, while the latter will have to purchase at the next level at higher prices, i.e., from an independent glass distributor or PPG distribution center. Non-factory buyers who are competing in end markets with factory buyers are under competitive pressure to find sources of lower priced glass; some have done so by importing window glass. Nevertheless, as noted above, most concerns importing window glass also are recognized factory buyers who can purchase directly from U.S. producers of such glass. Firms which cannot purchase directly from domestic factories are believed to account for only a small share of the window glass imported into the United States.

Depending on circumstances, the distribution chain in the United States for window glass may have as few as two links, or it may have multiple links. Window glass, for example, may be distributed from producer to door manufacturer; it might also be distributed from producer to independent glass distributor, to jobber, to retailer, and finally to home owner.

U.S. producers' shipments (including intracompany transfers) of sheet glass (which includes thin and heavy sheet glass, as well as window glass), by class of customer, in 1961, 1966, and 1968 were as follows:

| Customer classification 1/ | Percent of total value of shipments and transfers | | |
|---|---|---|---|
| | 1961 | 1966 | 1968 |
| Shipments (including intracompany transfers) to: 2/ | | | |
| Distributors, jobbers, wholesalers, and contractors | 45.3 | 37.6 | 34.9 |
| Sash and door manufacturers | 23.7 | 24.8 | 27.6 |
| Temperers | 9.4 | 15.2 | 16.5 |
| Laminators | 4.0 | 2.2 | 1.9 |
| Multiple-glazed-insulating-unit manufacturers | 4.0 | 5.4 | 5.6 |
| Mirror manufacturers | 4.8 | 4.9 | 4.9 |
| Other accounts 3/ | 8.8 | 9.9 | 8.6 |
| Total | 100.0 | 100.0 | 100.0 |

1/ Classified according to principal function.
2/ Intracompany transfers are classified according to the purpose for which the glass was transferred (e.g., for distribution to others, temperi or laminating). The value of intracompany transfers amounted to roughly 20 percent of the total value of annual shipments in the years indicated.
3/ Includes manufacturers of jalousies, counter-dividers, lighting fixture parts, novelties, picture frames, appliance parts, and microscope slides. The statistics shown include data on some shipments that could not be classified by type of customer.

Terms of sale

The U.S. producers publish prices of window glass in terms of common specifications long used in the industry. The published prices vary directly with the thickness and the area of the light (piece) of glass. They also vary with the quality of the glass (the better the

quality, the higher the price), and the type of packing (the larger the quantity in a given pack, the lower the price). Extra charges are levied for nonstandard sizes. The prices are quoted in terms of boxes of either 50 square feet or 100 square feet or both (whether packed in boxes or pallets). Some domestic producers publish list prices that are subject to both trade and terms-of-payment (cash) discounts; others quote "net" prices subject only to cash discounts.

Since 1960 the prices of window glass quoted by the U.S. producers have, in effect, been on a delivered price basis. 1/ The terms of the price quotations have been f.o.b. plant, but the producers have absorbed freight charges to destinations in the continental United States. From 1960 through 1966 the maximum freight absorption on westbound shipments was limited to an amount equal to the freight rate from the producer's plant to Denver, Colorado; this limitation was abolished in January 1967, when one of the domestic producers opened a sheet glass plant in California. Since January 1967 the published prices quoted by domestic producers have been the same throughout the United States; earlier, published prices applicable west of Denver were 6 percent higher than those applicable in the East.

The U.S. sales agents of foreign manufacturers generally base their published prices for window glass on the same format of specifications as the domestic producers. Like those of domestic glass,

1/ Before 1960 the U.S. producers equalized freight charges on shipments of sheet glass with those from the domestic plant nearest to the consumer.

the published prices of imported glass vary directly with the thickness and area of the light; they also vary with the quality of the glass and the type of packing. From the fall of 1960 to 1962, the agents employed a delivered price system; prices were quoted for window glass delivered to the customer's warehouse with duty, transportation, and all charges paid. In 1962, after the President proclaimed increased rates of duty subsequent to the first escape-clause investigation of sheet glass, the agents changed to a duty-paid ex-dock basis, which was comparable to that used by them before 1960. Four years later, in mid-1966, the agents for the principal foreign producers returned to a delivered price system; they have used this system since. Under the delivered price system, the delivered cost of imported window glass is the same to inland buyers as to seaboard buyers, while, under the ex-dock basis, the delivered cost was higher to inland buyers than to seaboard buyers.

Recent price developments

During the 1960's the prices of window glass in the United States have been altered frequently by U.S. producers and agents of foreign producers. Price changes have been effected chiefly by two means--(1) by changing published prices, pricing practices, and terms of sale and (2) by granting unpublished price concessions.

The published prices of window glass in the United States have moved upward in recent years, sporadically and irregularly. On May 1, 1969 the price of domestic window glass packed in standard pallets was about 10 percent higher than on the corresponding date in 1964, while the price of such glass packed in 50-foot boxes was about 20 percent higher (table 8). Individual price changes during that period, however, depended upon the quantities purchased, the location of the customer, and the type of pack. Several changes in terms of sale and pricing practices, whose effect cannot be quantified, afforded reduced prices to customers under specified circumstances of sale; these changes included the offering of discounts for glass in extra large and/or modified containers, discounts for extra large volume orders, discounts for "tank-run" glass sold in a few dimensions economical to produce, and increases in freight absorption. These pricing practices, which were published with the price schedules, generally were followed by both domestic and foreign suppliers of glass to the U.S. market.

The published prices of window glass quoted by most of the domestic producers customarily are identical, 1/ while, in like fashion, the published prices quoted by agents of the major foreign suppliers are virtually identical. In recent years the prices of window glass

1/ Price changes instituted by one manufacturer usually are followed shortly by the other producers. One domestic company regularly quotes published prices that are about 4 percent below those of the other domestic producers.

published by the U.S. agents of the major foreign suppliers have consistently been below those of the domestic producers. The margins between such published prices, however, have narrowed appreciably during the period since 1964. In 1964, for example, the agents of most foreign producers offered 18-ounce single-strength window glass at published prices about 9 percent, and 19-ounce single-strength window glass at prices about 6 percent, below the published prices of 19-ounce domestic window glass; such margins currently are about 5 percent and 2 percent, respectively (table 9). The bulk of the single-strength window glass imported in recent years has consisted of 18-ounce glass; such glass accounted for about three-fourths of U.S. imports of single-strength window glass in 1968.

A comparison of the published prices of U.S. producers with those of agents of foreign producers presents only a partial picture of price relationships between the two. Some domestic and some imported window glass has been sold in recent years at prices below the published prices. Beginning in 1967 the domestic producers of window glass began to sell below their published prices. According to the producers, when they have received adequate documentation of price offers by others lower than their published prices, they have at times met, or partially met, such prices. The producers state that they have made such price concessions to meet the lower prices of imported window glass in the U.S. market. Since the institution of this practice, the

domestic producers have materially expanded the breadth and depth of such price concessions, as follows (data in percent): 1/

| | 1967 | 1968 | January-June 1969 |
|---|---|---|---|
| Share of total window glass shipments marketed below published prices | 1.9 | 5.2 | 13.5 |
| Average discount below published prices | 4.4 | 8.0 | 10.9 |

The average discount in January-June 1969 was about equivalent to the increase that had occurred in the published prices of domestic window glass packed in pallets since 1964 but to only about half of the increase in the published prices of window glass packed in boxes (table 8). Most of the discounts were granted on sales of window glass packed in pallets.

The extent and character of price discounting by agents of foreign firms--i.e., the share of the imports of window glass that has been sold below published prices and the degree to which the published prices have been discounted--cannot be measured. Nevertheless, extensive evidence indicates that foreign glass has been offered and sold in the U.S. market at discounted prices. Agents for some foreign factories (i.e., Taiwan) have offered regular discounts; agents for some factories have negotiated price concessions of various sizes and kinds with individual purchasers. The selling practices of some agents

1/ Computed by the Tariff Commission from data supplied by the domestic producers.

have also apparently contributed to the price disparity between imported and domestic glass; some agents of foreign glass, for example, have sold directly to small secondary users (ordinarily served by distributors), at prices somewhat higher than those the agents normally charged the distributors, but lower than those the users would have been charged by the distributors.

## Employment in U.S. Establishments Producing Window Glass

Window glass is produced in the United States in plants that are devoted predominantly to the production of sheet glass. Window glass, on the average, accounts for about two-thirds of the output of sheet glass in those establishments. The data available to the Commission on employment in the U.S. establishments in which window glass is produced relate to the total number of workers employed in those establishments and to the man-hours worked in the production of sheet glass. Data respecting the number of workers employed or the man-hours worked in the production of window glass are not available. The number of workers employed and the annual number of man-hours worked in the production of sheet glass declined in the 5-year period 1964-68, reflecting the lower level of annual output of window and other sheet glass in 1966-68 than in 1964-65. * * *

* * *

Indexes of annual U.S. production of sheet glass, man-hours worked in the production of sheet glass, and output per man-hour, 1964-68, are shown in the following tabulation (1957-59=100).

| Year | Production | Man-hours | Output per man-hour |
|---|---|---|---|
| 1964 | 117 | 102 | 115 |
| 1965 | 117 | 103 | 114 |
| 1966 | 104 | 92 | 113 |
| 1967 | 96 | 89 | 109 |
| 1968 | 103 | 87 | 118 |

Changes in man-hours worked in the production of sheet glass in 1964-68 reflected largely changes in output of such glass. The proportionate decline in output per man-hour from 1964 through 1967 was considerably less than the decline in production. In 1968 the moderately higher annual output was accompanied by a slight decline in man-hours worked. The increase in output per man-hour in the production of sheet glass in the decade from the late 1950's to the late 1960's (about 15 percent) was only half that in the private nonfarm sector of the economy (30 percent) and less than half that in manufacturing (35 percent).

The output of sheet glass per man-hour worked among the establishments in which window glass is produced varies widely. In recent years, among plants not affected by shutdowns during a major part of the year, the highest plant output per man-hour was more than double the lowest.

The plant output per man-hour of a number of establishments has clustered near the low end of the range, while that of others have generally been scattered throughout the range (table 11).

Products other than sheet glass were produced in 3 of the 13 establishments that manufactured window glass in 1968. The man-hours worked in the production of sheet glass in each of the 3 establishments accounted for more than nine-tenths of the annual man-hours worked.

## Profit-and-loss Experience of Domestic Producers

The data reported in this section represent the financial experience of domestic producers on sales accounting for more than 90 percent of the domestic shipments of sheet glass in each of the years shown and virtually all of the domestic shipments of window glass. The data shown for the years 1965-68 aggregate the profit-and-loss data of five firms; the data for 1964 include the financial results of the operations of those five firms, plus that of a sixth firm which subsequently closed. 1/

The aggregate value of net sales (including intracompany transfers) 2/ of sheet glass by the firms reporting data to the Commission declined from 1964 to 1967, but then increased in 1968. Aggregate sales declined from $143.8 million in 1964 to * * * in 1967, and then rose * * * in 1968 (table 12). The changes in aggregate net operating profits and in the ratios of profits to net sales for the companies concerned followed the same pattern. Net profits declined from $18.1 million in 1964 to * * * in 1967, but then increased

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1/ The only firm producing significant quantities of sheet glass for which profit-and-loss data were not available was the Ford Motor Co. Ford's production of sheet glass, which is predominantly captive, amounted to less than * * * (based on weight) of the domestic industry's aggregate output in 1968. The data for 1964 include the financial experience of the Blackford Window Glass Co. Although the company did not cease operations until 1966, no data are available for the years 1965-66. The net sales of the company, however, were less than 2 percent of the aggregate net sales of the industry in 1965 and were insignificant in 1966.

2/ In 1968 intracompany transfers accounted for about 20 percent of aggregate net sales. * * *

to * * * in 1968. Net profits were equivalent to 12.6 percent of net sales in 1964; * * * Three of the six firms reporting in 1964 sustained losses. * * *

At the Commission's request, each of the five firms currently producing window glass reported, for each of the years 1964-68, their profits or losses on window-glass operations separately from their profits or losses on sheet-glass operations. The responses to this request involved extensive allocation of plant and company costs to segregate those costs applicable to window glass. When such extensive allocation is required, the results obtained can be materially affected by the methods of allocation employed. Two of the five firms found it necessary to allocate all costs on the basis of the ratio of the value of their sales of window glass to the value of their total sales; sales of window glass accounted for about three-fourths of the total sales in 1968 of one of the companies, and more than four-fifths of the total sales of the second. The other companies employed different methods to allocate costs to window glass. * * *

# Appendix A

Table 1.--Sheet glass weighing over 4 ounces per square foot: U.S. rates of duty provided in the Tariff Schedules of the United States (TSUS) 1/

(In cents per pound and percent ad valorem)

| TSUS item | Article | Appendix item 2/ | Statutory rate 3/ | Trade-agreement rate 4/ | Escape-action rate 5/ | Currently applicable rate 6/ |
|---|---|---|---|---|---|---|
| | Glass (including blown or drawn glass, but excluding cast or rolled glass and excluding pressed or molded glass) (whether or not containing wire netting), in rectangles, not ground, not polished and not otherwise processed, weighing over 4 oz. per sq. ft., provided for in TSUS items 542.11-.98, inclusive: | | | | | |
| | Ordinary glass: | | | | | |
| | Weighing over 4 oz. but not over 12 oz. per sq. ft.: | | | | | |
| 542.11 | Measuring not over 40 united inches | | 1.5¢ | 0.7¢ | 1.3¢ | 0.7¢ |
| 542.13 | Measuring over 40 united inches | | 1.9¢ | .9¢ | 1.6¢ | .9¢ |
| | Weighing over 12 oz. but not over 16 oz. per sq. ft.: | | | | | |
| 542.21 | Measuring not over 40 united inches | | 2.1¢ | 1.0¢ | 1.3¢ | 1.0¢ |
| 542.23 | Measuring over 40 but not over 60 united inches | | 2.4¢ | 1.1¢ | 1.6¢ | 1.1¢ |
| 542.25 | Measuring over 60 united inches | | 2.5¢ | 1.2¢ | 1.9¢ | 1.2¢ |
| | Weighing over 16 oz. but not over 28 oz. per sq. ft.: | | | | | |
| 542.31 | Measuring not over 40 united inches | 923.31 | 1.5¢ | .7¢ | 1.3¢ | 1.1¢ |
| 542.33 | Measuring over 40 but not over 60 united inches | 923.33 | 1.9¢ | .9¢ | 1.6¢ | 1.5¢ |
| 542,35 | Measuring over 60 but not over 100 united inches | 923.35 | 2.4¢ | 1.1¢ | 1.9¢ | 1.5¢ |
| 542.37 | Measuring over 100 united inches | 923.37 | 2.8¢ | 1.4¢ | 2.4¢ | 1.4¢ |
| | Weighing over 28 oz. per sq. ft.: | | | | | |
| 542.42 | Not over 2-2/3 sq. ft. in area | | 1.5¢ | .7¢ | 1.3¢ | .7¢ |
| 542.44 | Over 2-2/3 but not over 7 sq. ft. in area | | 1.9¢ | .9¢ | 1.6¢ | .9¢ |
| 542.46 | Over 7 but not over 15 sq. ft. in area | | 2.4¢ | 1.1¢ | 1.9¢ | 1.1¢ |
| 542.48 | Over 15 sq. ft. in area | | 2.8¢ | 1.4¢ | 2.4¢ or 3.5¢ 7/ | 1.4¢ |
| | Colored or special glass: | | | | | |
| 542.57 | Weighing over 4 oz. but not over 12 oz. per sq. ft. | | 4.0¢ | 1.7¢ | 2.2¢ | 1.7¢ |
| 542.67 | Weighing over 12 oz. but not over 16 oz. per sq. ft. | | 13.0¢ | 6.0¢ | 9.0¢ | 6.0¢ |
| | Weighing over 16 oz. but not over 28 oz. per sq. ft.: | | | | | |
| 542.71 | Measuring not over 40 united inches | 923.71 | 1.5¢ + 5% | 0.7¢ + 2.5% | 1.3¢ + 2.5% | 1.1¢ + 2.5% |
| 542.73 | Measuring over 40 but not over 60 united inches | 923.73 | 1.9¢ + 5% | 0.9¢ + 2.5% | 1.6¢ + 2.5% | 1.5¢ + 2.5% |
| 542.75 | Measuring over 60 but not over 100 united inches | 923.75 | 2.4¢ + 5% | 1.1¢ + 2.5% | 1.9¢ + 2.5% | 1.5¢ + 2.5% |
| 542.77 | Measuring over 100 united inches | 923.77 | 2.8¢ + 5% | 1.4¢ + 2.5% | 2.4¢ + 2.5% | 1.4¢ + 2.5% |
| | Weighing over 28 oz. per sq. ft.: | | | | | |
| 542.92 | Not over 2-2/3 sq. ft. in area | | 1.5¢ + 5% | 0.7¢ + 2.5% | 1.3¢ + 2.5% | 0.7¢ + 2.5% |
| 542.94 | Over 2-2/3 but not over 7 sq. ft. in area | | 1.9¢ + 5% | 0.9¢ + 2.5% | 1.6¢ + 2.5% | 0.9¢ + 2.5% |
| 542.96 | Over 7 but not over 15 sq. ft. in area | | 2.4¢ + 5% | 1.1¢ + 2.5% | 1.9¢ + 2.5% | 1.1¢ + 2.5% |
| 542.98 | Over 15 sq. ft. in area | | 2.8¢ + 5% | 1.4¢ + 2.5% | 2.4¢ + 2.5% or 3.5¢ + 2.5% 7/ | 1.4¢ + 2.5% |

1/ The rates of duty originally provided in the TSUS and the TSUS appendix were placed in effect Aug. 31, 1963, by Presidential Proclamation No. 3548.

2/ The rates of duty currently applicable to glass as the result of escape-clause action are set forth in these items of the TSUS appendix.

3/ Rates of duty currently applied to the products of countries or areas designated as Communist dominated or controlled.

4/ The most recent rates of duty placed in effect as a result of concessions granted under the General Agreement on Tariffs and Trade, as modified by proclamation of the TSUS. These rates were temporarily suspended on June 17, 1962.

5/ Rates of duty placed in effect June 17, 1962, by Presidential Proclamation No. 3455 under the escape-clause procedure, as modified by proclamation of the TSUS. These rates were superseded by the rates which were placed in effect by Presidential Proclamation No. 3762 on January 11, 1967.

6/ Rates of duty placed in effect on January 11, 1967 by Presidential Proclamation No. 3762 of that date. The rates of duty applicable to TSUS appendix items 923.31, 923.33, 923.35, 923.71, 923.73, and 923.75 are higher than the trade-agreement rates and are therefore temporary. Presidential Proclamation 3816, dated October 11, 1967, extended the time period for the increased rates of duty to the close of December 31, 1969. The rates applicable to all other TSUS items are the trade-agreement rates.

7/ The escape-action rate on sheet glass weighing over 28 ounces per square foot and measuring over 15 but not over 16-2/3 sq. ft. in area was 2.4¢ per lb. (plus 2.5% ad valorem if colored or special); that on sheet glass weighing over 28 oz. per sq. ft. and measuring over 16-2/3 sq. ft. in area was 3.5¢ per lb. (plus 2.5% ad valorem if colored or special).

Table 2.--Sheet glass: Shipments by U.S. producers, U.S. exports of domestic merchandise, U.S. imports for consumption, and apparent U.S. consumption, annual 1964-68 and January-June 1968 and 1969

| Item | 1964 | 1965 | 1966 | 1967 | 1968 | January-June-- 1968 | January-June-- 1969 |
|---|---|---|---|---|---|---|---|
| | Quantity (million pounds) | | | | | | |
| Shipments by U.S. producers | 1,530.0 | 1,532.1 | 1,383.4 | 1,248.3 | 1,352.8 | 617.5 | 737.6 |
| U.S. exports 1/ | 4.2 | 4.0 | 9.0 | 10.7 | 6.7 | 4.8 | 2.0 |
| U.S. imports for consumption: | | | | | | | |
| At most-favored-nation rates of duty | 444.6 | 386.9 | 422.1 | 416.4 | 582.5 | 276.3 | 248.7 |
| At full rates of duty | 32.3 | 38.4 | 40.4 | 44.5 | 46.2 | 18.4 | 17.3 |
| Total (all rates of duty) | 476.9 | 425.3 | 462.5 | 460.9 | 628.7 | 294.7 | 266.0 |
| Apparent U.S. consumption | 2,002.7 | 1,953.4 | 1,836.9 | 1,698.5 | 1,974.8 | 907.4 | 1,001.6 |
| | Percent of U.S. consumption | | | | | | |
| Share supplied by-- | | | | | | | |
| Shipments 2/ by U.S. producers | 76.2 | 78.2 | 74.8 | 72.9 | 68.2 | 67.5 | 73.4 |
| U.S. imports for consumption: | | | | | | | |
| At most-favored-nation rates of duty | 22.2 | 19.8 | 23.0 | 24.5 | 29.5 | 30.5 | 24.8 |
| At full rates of duty | 1.6 | 2.0 | 2.2 | 2.6 | 2.3 | 2.0 | 1.8 |
| Total (all rates of duty) | 23.8 | 21.8 | 25.2 | 27.1 | 31.8 | 32.5 | 26.6 |

1/ Official statistics are reported in square feet and have been converted to pounds at the ratio of 1 sq. ft.=1.16 pounds. Data for 1964 do not include colored glass; it is believed, however, that exports of colored glass were small.

2/ Less exports.

Source: Compiled from official statistics of the U.S. Department of Commerce, and from information submitted to the U.S. Tariff Commission by U.S. producers.

Table 3.--Indexes of U.S. producers' shipments of sheet glass, apparent U.S. consumption of sheet glass, and selected U.S. business indicators, 1955-68

(1957-59=100)

| Year | U.S. producers' shipments of sheet glass 1/ | Apparent U.S. consumption of sheet glass 1/ | Selected U.S. business indicators | | | |
|---|---|---|---|---|---|---|
| | | | Total industrial production 3/ | Residential construction | | Automobile production 6/ |
| | | | | Housing starts 4/ | Value 5/ | |
| 1955 | 121 | 111 | 91 | 119 | 110 | 139 |
| 1956 | 120 | 115 | 100 | 98 | 98 | 103 |
| 1957 | 95 | 89 | 101 | 89 | 91 | 112 |
| 1958 | 85 | 86 | 94 | 100 | 96 | 80 |
| 1959 | 120 | 126 | 106 | 111 | 113 | 108 |
| 1960 | 96 | 101 | 109 | 92 | 99 | 131 |
| 1961 | 97 | 99 | 110 | 97 | 99 | 109 |
| 1962 | 110 | 115 | 118 | 107 | 109 | 136 |
| 1963 | 118 | 118 | 124 | 117 | 113 | 150 |
| 1964 | 116 | 121 | 132 | 111 | 111 | 151 |
| 1965 | 116 | 118 | 143 | 108 | 109 | 183 |
| 1966 | 105 | 111 | 156 | 85 | 97 | 170 |
| 1967 | 95 | 103 | 158 | 94 | 92 | 146 |
| 1968 | 101 | 117 | 165 | 110 | 106 | 175 |

1/ Calculated from data on the number of pounds shipped by U.S. producers in table 2 in this report and table 4 in United States Tariff Commission, Drawn or Blown Flat Glass (Sheet Glass), TC Publication 158, 1965.

2/ Calculated from data on apparent U.S. consumption (number of pounds) in table 2 in this report and table 4 in United States Tariff Commission, Drawn or Blown Flat Glass (Sheet Glass), TC Publication 158, 1965.

3/ Index of industrial production published by the Board of Governors of the Federal Reserve System in the Federal Reserve Bulletin.

4/ Calculated from data on the number of public and private nonfarm new housing starts published in Department of Commerce, Business and Defense Services Administration, Construction Review.

5/ Calculated from data on the value of public residential and private nonfarm residential construction put in place, adjusted to constant dollars, published in Department of Commerce, Business and Defense Services Administration, Construction Review.

6/ Index of auto production published as part of the index of industrial production by the Board of Governors of the Federal Reserve System in Federal Reserve Bulletin.

Table 6.--Sheet glass: U.S. imports for consumption entered at most-favored-nation rates of duty, by tariff provisions, 1964-68 and January-June 1968 and 1969

(In thousands of pounds)

| Item | 1964 | 1965 | 1966 | 1967 | 1968 | January-June | |
|---|---|---|---|---|---|---|---|
| | | | | | | 1968 | 1969 |
| Sheet glass weighing over 4 but not over 12 oz. per sq. ft. measuring in united inches: | | | | | | | |
| Not over 40 | 2,108 | 2,742 | 4,067 | 4,233 | 3,858 | 1,951 | 1,616 |
| Over 40 | - | 1 | 107 | - | 78 | - | 20 |
| Total, weighing not over 12 oz. per sq. ft. | 2,108 | 2,743 | 4,174 | 4,233 | 3,936 | 1,951 | 1,636 |
| Sheet glass weighing over 12 but not over 16 oz. per sq. ft. and measuring in united inches: | | | | | | | |
| Not over 40 | 20,499 | 25,436 | 23,958 | 13,442 | 11,458 | 5,917 | 4,848 |
| Over 40 but not over 60 | 21,687 | 23,278 | 12,065 | 1,650 | 1,469 | 870 | 465 |
| Over 60 | 7,456 | 5,350 | 5,068 | 197 | 302 | 168 | 5 |
| Total, weighing over 12 but not over 16 oz. per sq. ft. | 49,642 | 54,064 | 41,091 | 15,289 | 13,229 | 6,955 | 5,318 |
| Sheet glass weighing over 16 but not over 28 oz. per sq. ft. and measuring in united inches: | | | | | | | |
| Not over 40 | 36,631 | 32,807 | 42,034 | 54,911 | 81,477 | 39,291 | 35,943 |
| Over 40 but not over 60 | 95,748 | 77,964 | 86,830 | 92,115 | 136,504 | 61,061 | 47,947 |
| Over 60 but not over 100 | 83,874 | 69,167 | 70,522 | 66,358 | 105,696 | 49,236 | 37,153 |
| Over 100 | 10,953 | 10,277 | 12,239 | 17,044 | 25,394 | 12,636 | 11,735 |
| Total, weighing over 16 but not over 28 oz. per sq. ft. | 227,206 | 190,215 | 211,625 | 230,428 | 349,071 | 162,224 | 132,778 |
| Sheet glass weighing over 28 oz. per sq. ft. and measuring in sq. ft.: | | | | | | | |
| Not over 2-2/3 | 20,390 | 16,111 | 17,719 | 20,832 | 31,861 | 17,001 | 13,562 |
| Over 2-2/3 but not over 7 | 20,009 | 14,507 | 30,235 | 30,273 | 36,404 | 17,365 | 18,979 |
| Over 7 but not over 15 | 15,054 | 15,975 | 18,926 | 19,166 | 29,800 | 14,573 | 13,745 |
| Over 15 but not over 16-2/3 | 11,708 | 6,259 | 5,381 | 8,076 | 10,298 | 4,821 | 7,042 |
| Over 16-2/3 | 98,485 | 87,008 | 92,957 | 88,115 | 107,888 | 51,404 | 55,699 |
| Total, weighing over 28 oz. per sq. ft. | 165,646 | 139,860 | 165,218 | 166,462 | 216,251 | 105,164 | 109,027 |
| Grand total, at most-favored-nation rates of duty | 444,602 | 386,882 | 422,108 | 416,412 | 582,487 | 276,294 | 248,758 |

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

Table 7.--Sheet glass: 1/ U.S. imports for consumption, by principal sources, annual 1964-68 and January-June 1968 and 1969

| Country | 1964 | 1965 | 1966 | 1967 | 1968 | January-June-- | |
|---|---|---|---|---|---|---|---|
| | | | | | | 1968 | 1969 |
| | Quantity (1,000 pounds) | | | | | | |
| Belgium | 147,236 | 122,304 | 142,924 | 134,604 | 170,581 | 87,863 | 70,911 |
| West Germany | 45,887 | 45,361 | 52,779 | 52,845 | 72,593 | 31,071 | 33,898 |
| Italy | 16,982 | 22,508 | 33,560 | 26,052 | 56,915 | 22,458 | 18,190 |
| Japan | 78,011 | 62,648 | 50,237 | 50,801 | 56,800 | 29,183 | 25,935 |
| United Kingdom | 25,521 | 30,437 | 38,225 | 36,530 | 48,972 | 21,044 | 20,341 |
| Republic of China (Taiwan) | 7,558 | 9,520 | 13,830 | 31,930 | 41,698 | 22,839 | 15,977 |
| Israel | 9,300 | 9,689 | 15,494 | 13,183 | 17,046 | 8,632 | 4,841 |
| Finland | 16,650 | 12,647 | 14,486 | 9,618 | 15,585 | 5,984 | 9,546 |
| Canada | 10,432 | 7,139 | 7,736 | 3,751 | 3,091 | 1,145 | 12,747 |
| All other | 87,026 | 64,629 | 52,838 | 57,098 | 99,206 | 46,075 | 36,372 |
| Total | 444,603 | 386,882 | 422,109 | 416,412 | 582,487 | 276,294 | 248,758 |
| Communist dominated countries at full rates of duty | 32,308 | 38,441 | 40,445 | 44,483 | 46,227 | 18,400 | 17,322 |
| Grand total | 476,911 | 425,323 | 462,554 | 460,895 | 628,714 | 294,694 | 266,080 |
| | Value (1,000 dollars) | | | | | | |
| Belgium | 9,539 | 7,195 | 8,473 | 9,475 | 12,706 | 6,465 | 5,616 |
| West Germany | 3,493 | 3,344 | 4,041 | 4,791 | 6,400 | 2,788 | 2,960 |
| Italy | 1,077 | 1,233 | 1,716 | 1,765 | 7,708 | 1,661 | 1,367 |
| Japan | 5,386 | 4,112 | 3,589 | 4,313 | 4,844 | 2,420 | 2,287 |
| United Kingdom | 1,670 | 1,925 | 2,284 | 2,491 | 3,400 | 1,533 | 1,407 |
| Republic of China (Taiwan) | 434 | 594 | 851 | 1,810 | 2,301 | 1,248 | 949 |
| Israel | 535 | 519 | 744 | 638 | 889 | 453 | 264 |
| Finland | 862 | 695 | 831 | 626 | 1,024 | 401 | 651 |
| Canada | 698 | 461 | 502 | 274 | 282 | 92 | 1,240 |
| All other | 5,362 | 3,964 | 3,480 | 3,802 | 2,921 | 2,850 | 2,284 |
| Total | 29,056 | 24,042 | 26,511 | 29,985 | 42,475 | 19,911 | 19,025 |
| Communist dominated countries at full rates of duty | 1,271 | 1,446 | 1,663 | 1,824 | 1,869 | 733 | 710 |
| Grand total | 30,327 | 25,488 | 28,174 | 31,809 | 44,344 | 20,644 | 19,735 |

1/ Includes colored glass.

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

Table 8.--Indexes of published prices of domestic single-strength window glass and the BLS wholesale price index of window glass, on selected dates, 1964-69

(May 1, 1964=100)

| Date | Single-strength "B", over 50 but not over 60 united inches | | BLS index 1/ |
|---|---|---|---|
| | In 50-foot boxes | In standard pallets | |
| May 1, 1964 | 100 | 100 | 100 |
| Nov. 1, 1964 | 100 | 100 | 102 |
| May 1, 1965 | 100 | 99 | 101 |
| Nov. 1, 1965 | 98 | 97 | 97 |
| May 1, 1966 | 97 | 96 | 99 |
| Nov. 1, 1966 | 101 | 101 | 101 |
| May 1, 1967 | 101 | 101 | 101 |
| Nov. 1, 1967 | 108 | 101 | 109 |
| May 1, 1968 | 115 | 107 | 115 |
| Nov. 1, 1968 | 113 | 105 | 113 |
| May 1, 1969 | 120 | 110 | 120 |

1/ The BLS wholesale price index of window glass is based on prices of a single specification--"Window glass, single B, 40 bracket; manufacturer to jobbers, carlots, f.o.b. factory with freight prepaid or allowed."

Source: Computed from pricelists submitted by domestic producers and official statistics of the U.S. Bureau of Labor Statistics.

Table 9.--Published prices of a representative type and size of window glass, 1/ domestic and West European, delivered in New York City 2/ on selected dates, 1964-69

| Date | Domestic 19-ounce glass | West European glass | | Margin by which the price of West European glass was lower than the price of 19-ounce domestic glass-- | | | |
|---|---|---|---|---|---|---|---|
| | | 18-ounce | 19-ounce | 18-ounce | | 19-ounce | |
| | Per 100 sq. ft. | Per 100 sq. ft. | Per 100 sq. ft. | Per 100 sq. ft. | Percent | Per 100 sq. ft. | Percent |
| May 1, 1964 | $11.06 | $10.10 | $10.41 | $0.96 | 8.7 | $0.65 | 5.9 |
| Nov. 1, 1964 | 11.06 | 10.10 | 10.41 | .96 | 8.7 | .65 | 5.9 |
| May 1, 1965 | 10.95 | 9.90 | 10.21 | 1.05 | 9.6 | .74 | 6.8 |
| Nov. 1, 1965 | 10.73 | 10.01 | 10.21 | .72 | 6.7 | .52 | 4.8 |
| May 1, 1966 | 10.61 | 10.21 | 10.40 | .40 | 3.8 | .21 | 2.0 |
| Nov. 1, 1966 | 11.15 | 10.37 | 10.71 | .78 | 7.0 | .44 | 3.9 |
| May 1, 1967 | 11.15 | 10.37 | 10.71 | .78 | 7.0 | .44 | 3.9 |
| Nov. 1, 1967 | 11.15 | 10.37 | 10.71 | .78 | 7.0 | .44 | 3.9 |
| May 1, 1968 | 11.82 | 10.99 | 11.35 | .83 | 7.0 | .47 | 4.0 |
| Nov. 1, 1968 | 11.58 | 10.99 | 11.35 | .59 | 5.1 | .23 | 2.0 |
| May 1, 1969 | 12.16 | 11.53 | 11.92 | .63 | 5.2 | .24 | 2.0 |

1/ Single-strength "B", over 50 but not over 60 united inches. Prices are for glass packed in standard pallets. They reflect payment (cash) discounts, but not discounts for large volume orders, special stock sizes, or packing on extra heavy pallets.

2/ Through May 1, 1966, published prices of West European glass were quoted on an ex-dock, duty-paid basis; an amount estimated to be equivalent to charges for customs brokerage, loading, and trucking in New York City has been added to the published prices for the dates May 1, 1964 through May 1, 1966.

Source: Compiled from manufacturers' and sales agents' pricelists.

Table 12.--Profit-and-loss experience of domestic producers 1/ on their sheet glass and window glass operations 1964-68

| Year | Net sales and intracompany transfers | Net operating profit or (loss) before income taxes | Ratio of net operating profit or (loss) to net sales |
|---|---|---|---|
| | 1,000 dollars | 1,000 dollars | Percent |
| | Sheet Glass | | |
| 1964 | 143,885 | 18,095 | 12.6 |
| 1965 | 141,261 | 13,173 | 9.3 |
| 1966 | 131,595 | 6,755 | 5.1 |
| | * * * | * * * | * * * |

1/ Includes data on all companies that produce significant quantities of sheet glass, except the Ford Motor Co. Ford's sheet glass production, which is predominantly captive, amounted to less than * * * (based on weight) of the domestic industry's aggregate output in 1968. Data on the Blackford Window Glass Co., which ceased operations in February 1966, are included for 1964. Data on Blackford's operations in 1965 and 1966 are not available; Blackford accounted for less than 2 percent of the industry's aggregate sales of sheet glass in 1965 and an even smaller share in 1966.

Source: Compiled from information submitted to the U.S. Tariff Commission by the domestic producers.