

L E A D A N D Z I N C I N D U S T R Y

STATISTICS FOR 1963 COMPARED WITH

OTHER YEARS

ARIZONA, UNITED STATES AND FREE WORLD

COMPILED BY

ARIZONA DEPARTMENT OF MINERAL RESOURCES

MINERAL BUILDING FAIRGROUNDS

PHOENIX 7, ARIZONA

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LEAD INDUSTRY

CONTENTS

	Page
Physical Properties of Lead	1
Metal Duties on Lead, in effect January 1, 1962	2
History of Lead in 1963 U.S.B.M.	3 - 6
Salient Lead Statistics 1961, 1962, & 1963 . . TABLE 1	7
Mine Production of Recoverable Lead by States 1954 - 1958 Average, Years 1959, 1960, 1961, 1962 and 1963 TABLE II	8
World Mine Production of Recoverable Lead by Countries 1956 - 1963 TABLE III	9
Lead Imports & Exports - U. S. - 1948-1963 . . TABLE IV	9
U. S. Lead Consumption - By Uses 1950-1963. . TABLE V	9
U. S. Lead Consumption 1961, 1962, 1963 . . TABLE VI	10
Imports & Exports of Lead in 1961, 1962, 1963 . . TABLE VII	11

L E A D

PHYSICAL PROPERTIES *

Lead is one of the most important industrial nonferrous metals used in substantial quantities in the metallic form; it is also important for the properties it imparts to its alloys.

Is the softest and heaviest of the common metals. It can be rolled to a foil of less than 0.0005 inches in thickness but is not ductile enough to be drawn into fine wire. Very malleable. Lead cannot be hardened except by alloying.

Some of the physical properties of lead are as follows;

Symbol - Pb. Atomic Weight - 207.21. Spec. Gravity - 11.34

Melting Point - 327.35°C (621.2°F). Boiling Point 1,740°C (3164°F)

Specific Resistance (20°-40°C) (68° - 104°F) - Microhm 20.65

Hardness (Mohs' scale) - 1.5. Tensile Strength #/sq. in. - 3,000

Crystal Structure - Face-centred Cubic. Valences - +4 & +2

* U.S.B.M.'s "MATERIALS SURVEY" - September, 1952

METAL DUTIES ON LEAD

According to the Tariff Act of 1930 amended.
Published by American Metal Market, "Metal Statistics, 1962", page 253.

Following rates in effect on January 1, 1962.

LEAD - Ore, on lead contained.	+ 3/4 c. lb.
In bullion or base bullion, pigs, bars, dross, reclaimed lead, *scrap lead, antimonial lead, * antimonial scrap lead, type metal, babbitt metal, solder and alloys not specially provided for on lead therein.	+ 1 1/16 c. lb.
Sheets, pipe, shot and wire.	1 5/16 c. lb.
White lead (Par. 72).	1.05 c. lb.
Litharge.	1 1/4 c. lb.
Red Lead.	1 7/8 c. lb.
Orange mineral.	2 c. lb.

* Import tax suspension expired June 30, 1958.

+ Duty suspended, effective Feb. 12, 1952; reimposed on June 26, 1952.

LEAD INDUSTRY IN 1963

Prepared August 17, 1964, by Donald E. Moulds, Physical Scientist.
Received in Phoenix, September 18, 1964.

Industrial requirements for lead in 1963, exceeded the supply from all sources and resulted in a significant reduction in primary producer stocks and, a rising metal price, according to the Bureau of Mines, U. S. Department of the Interior. Mine production and primary refinery output were disrupted by the continuation of the labor closure, which had started July 27, 1962, of the largest domestic producer through the first quarter of the year. Domestic output of recoverable lead in ore increased 7 per cent to 253,400 tons and production of primary refined and antimonial lead increased 6 per cent to 426,200 tons. Recovery of secondary lead from scrap materials was 11 per cent above the 1962 level but the other major source of lead, imports of metal for consumption, declined about 15 per cent to 220,400 tons. Consumption of lead increased 5 per cent to 1,163,400 tons with major gains occurring in gasoline antiknock additives and storage batteries. Stocks of refined lead at producers' plants declined to 49,300 tons by yearend and stocks of primary lead in all categories decreased 75,800 tons during the year while consumer stocks increased 26,400 tons to 119,900 tons, last exceeded in 1959. The price of common lead in New York increased in the second half of the year six increments from 10.00 cents to 12.50 cents on November 21.

Import quotas on lead ores and metal established October 1, 1958, continued in effect. The quota, subdivided into quarterly quotas for specified countries, was filled for lead ores only in the first quarter while lead metal quotas were filled except for the fourth quarter. The U. S. Tariff Commission submitted a report to the President on October 1, in accordance with Executive Order 10401, establishing the quotas, reviewing the trade and related developments in the lead-zinc industry. The Commission concluded that conditions had not changed sufficiently to warrant, at that time, a formal investigation directed toward revision of the quotas. Legislation was introduced in Congress proposing establishment of a flexible import quota system for lead and zinc and was still pending at yearend.

The Government did not acquire lead for the stockpile during the year. A small quantity of lead in the Defense Production Act stockpile was released for use by Government agencies during the year, thereby reducing total inventory to 1,378,000 tons. The Office of Emergency Planning devoted major attention to two major stockpile programs during the year - the development of disposal procedures for surplus materials and the development of new stockpile objectives. In relation to supply-requirements for conventional war, the stockpile objective for lead was established at zero on June 17. Legislation was introduced in Congress in October to revise procedures for disposal of surplus material by the Government and was still awaiting action at yearend.

The small mines stabilization program, authorized by Public Law 87-374 enacted in October 1963, applied to eligible production during the year. As of December 31, 1963, a total of 125 applications from small mines in 13 states had been received of which 98 were certified as eligible and 5 were being reviewed. In 1963 a total of 6,529 tons of lead qualified under provision of the Act for stabilization payments amounting to \$356,916.

Government participation in exploration projects for lead and zinc under the program of the Office of Minerals Exploration (OME) was withdrawn at the end of June 1962. Five projects approved to this action were active during 1963 and one of these projects, United Park City mine, was completed and certified as a discovery

The International Lead and Zinc Study Group held its seventh session in Geneva, Switzerland, from October 28 to November 7. The Government of Austria was admitted to membership and the Group now has 26 governments participating. The Group concluded that new supplies of lead were then in reasonable balance with consumption but the rising trend in lead consumption, estimated at 2.8 million tons in 1963 and expected to rise in 1964, could result in a supply shortfall in 1964. A Special Working Group, which met in Geneva in March, examined and reported to the Study Group on the various aspects of intergovernment arrangements for lead and zinc and it was decided to continue study in this area.

Production. - The domestic output of 253,400 tons of recoverable lead represented an increase of 7 per cent over the 1962 amount. The strike at the Missouri mines of St. Joseph Lead Co., which began on July 27, 1962, was not ended until April 1, 1963. Following settlement of the strike and reopening of the mines in April, U. S. output during the last 8 months of the year was at a level equivalent to an annual production of 284,000 tons.

Missouri regained the position of the leading lead-producing State with 79,800 tons followed by: Idaho, 75,800; Utah, 45,000; and Colorado, 19,900 tons. These four States contributed 220,500 tons or 87 per cent of the U. S. total. The remaining 32,900 tons represented the output of 15 States.

The 25 lead producing mines accounted for 92 per cent of the total domestic mine production; the 10 leading mines yielded 77 per cent and the 4 largest units 53 per cent.

Production of refined lead in the United States produced from all sources - primary, secondary, and remelt - was 529,300 tons compared with 494,500 tons in 1962. Primary refineries produced 394,700 tons from primary sources of which domestic ores supplied 61 per cent and 3,800 tons was from secondary materials. Secondary plants produced 130,800 tons from processed secondary materials. Remelt lead from all sources totaled 25,600 tons for the year. Primary lead materials smelted in primary plants provided 394,700 tons of refined lead and 31,500 tons of lead in antimonial lead. Domestic sources contributed 60 per cent of the total and foreign sources the remaining 40 per cent.

Secondary lead recovered from scrap amounted to 493,500 tons. Of this 134,500 tons was in the form of refined and remelt soft lead, 244,800 tons in antimonial lead, and 114,200 tons in other alloys. New scrap, primarily drosses from scrap smelting, contributed 13 per cent of the lead and old scrap, predominately battery plates, furnished 87 percent.

Consumption. - Lead consumption in the United States advanced sharply in January in relation to December 1962, and except for the month of August was consistently above the corresponding month in 1962. Total consumption of 1,163,400 tons was 5 per cent above the previous year and last exceeded in 1956. Consumption of soft lead was 740,200 tons, a moderate increase. Use of antimonial lead, however, increased substantially with the lead content increasing from 295,800 tons in 1962

to the 314,400 tons registered in 1963. Lead in alloys, copper-base scrap, and that used directly in fabricated end products all advanced in relation to 1962 totals. Of the 1,119,000 tons of smelter processed lead consumed in the United States, excluding that used directly in end products, soft lead represented 66 per cent; lead in antimonial lead, 28 per cent, lead in alloys, 4 per cent; and lead in copper-base scrap, 2 per cent. Industrial consumption of lead was widespread throughout the United States. Four States - New Jersey, Illinois, California, Indiana - each consuming over 100,000 tons, represented 46 per cent of the total.

Metal products accounted for 835,900 tons of lead consumption, a gain of 4 per cent. Increased use was shown for all classes except sheet lead and type metal. The downward trend in cable covering was reversed but type metal continued to decline as a major use. Pigments, after showing a recovery in 1962, declined again to 99,100 tons with substantial decreases of consumption in white lead and in red lead and litharge. Gasoline antiknock additives registered a major gain and a record for this use at 192,800 tons of lead. The two major end product uses of lead, storage batteries and gasoline additives combined, represent 54 per cent of the total lead consumed.

The Association of Battery Manufacturers, Inc. reported shipments of 31,840,000 units of replacement batteries and total battery shipments of 41,128,400 units including exports. This was a gain of almost 6 per cent and, in relation to replacement batteries, a new high.

Stocks. - Stocks of refined lead at primary producing plants declined 87,200 tons during the year to 49,300 tons at yearend and antimonial lead stocks increased to 7,300 tons. Total yearend stocks representing physical inventories at primary plants, regardless of ownership, but not including material in process or in transit, were 120,800 tons compared with 196,700 tons at the close of 1962.

Stocks reported by the American Bureau of Metal Statistics indicated that an additional 20,300 tons of lead in bullion was in process at or in transit to primary plants and about 25,800 tons of lead in ores was in process at smelters. Total stocks of primary lead as metal or in raw materials was thus 166,900 tons, a decrease of 67,100 tons during the year.

Consumer and secondary smelter stocks of lead increased from 93,500 tons at the end of 1962 to 119,900 tons at the end of 1963 and were last exceeded in 1959. The major increase was in refined soft lead with a gain of 20,400 tons, and in antimonial lead, up to 6,200 tons.

On December 31, the total lead inventory in all Government stockpiles was 1,378,400 tons of which 1,050,000 tons was in the national (strategic) stockpile, and 328,000 was in the supplemental stockpile.

Prices. - The quoted New York price for common lead at the opening of 1963 was 10.00 cents per pound. On January 14 the price increased to 10.50 cents and then increased in increments of $\frac{1}{4}$ cent on June 5, July 1, July 23, August 23, September 16, and October 8. On November 21, the price firmed at 12.50 cents for the remainder of 1963. The average New York price quotation for the year was 11.14.

Quotations on the London Metal Exchange ranged from a low of £53.75 per long ton in January (equivalent to 6.73 cents per pound U. S. currency - computed on the average monthly rate of exchange) to a high of £77.38 (9.66 cents) on December 31. The average for the year was 7.93 cents per pound.

Imports. - General imports of lead were 389,100 tons, about 3 per cent lower than the 402,800 tons reported for 1962. Imports for consumption were 376,500 tons compared with 397,400 for 1962. Import quotas were not completely filled except in the first quarter. Lead ores and concentrate imports for consumption were less than the total allowable in each of the last three quarters of the year, and metal imports did not fill the quota for the last quarter of the year. Pigs and bars accounted for 59 per cent of imports for consumption; ores and concentrates, 36 per cent; bullion, 1 per cent; and scrap and other products the remaining 4 per cent.

Peru, Republic of South Africa, Australia, Canada, Bolivia, and Honduras, in descending order of quantity, were the major suppliers of ore and concentrates. Mexico, with 33 per cent was the leading supplier of lead metal followed by Australia, Yugoslavia, Canada, and Peru, the other major suppliers.

Exports. - Total lead exported was 3,500 tons, less than one half of the 1962 exports. Exports of ore and concentrates were negligible and exports of metal decreased to 1,100 tons. Scrap exports of 2,400 tons, were approximately the same as in 1962.

Tariff. - A revised system of tariff classification was effective September 1, 1963, which altered duties on certain lead materials and reportings by the Bureau of the Census. Duties on lead metal, bullion, and drosses continued, however, at 1.0625 cents per pound of lead content; and duties of lead ores and concentrates remained at 0.75 cent. Suspension of duty on lead scrap continued throughout the year.

World Production. - Mine production of lead increased some 40,000 tons to an estimated 2.8 million with gains indicated for all continental areas except Europe and Africa. Disruption of mining on the Algeria-Morocco border was the major cause of the continuing decline in African production. Smelter production increased to 2.8 million tons, about 130,000 tons above the 1963 total. Stocks of lead metal held by smelters and refineries in the Free World (as compiled by the International Lead and Zinc Study Group) decreased some 104,000 short tons during 1963.

TABLE I

SALIENT U. S. LEAD STATISTICS FOR 1961, 1962 AND 1963

ARIZONA, UNITED STATES AND WORLD MINE PRODUCTION OF RECOVERABLE LEAD

Source: U. S. B. M.	Unit: Short Tons		
	Year 1961	Year 1962	Year 1963
Producers' Stocks Beginning of Period . . .	250,142	262,102	196,661
U. S. Mine Production Recoverable Lead . . .	261,921	236,956	253,369
Secondary Lead Recovered From Old & New Scrap	452,792	444,202	493,471
Imported Lead in Ore & Matte, Base Bullion .	147,608	143,505	153,179
Imported Lead in Pigs, Bars	256,852	257,201	235,902
Imported Lead in Reclaimed Scrap, etc. . . .	4,942	2,321	8,875
TOTAL SUPPLY	1,374,257	1,346,287	1,341,457
Producers' Stocks at End of Period	262,102	196,661	120,836
Exported Lead in Ore, Matte & Base Bullion	4,437	2,898	4
Exported Lead in Pigs and Bars	2,133	2,108	1,088
Exported Lead in Scrap	5,163	2,461	2,421
SUB-TOTAL	273,835	204,128	124,349
NET APPARENT CONSUMPTION	1,100,422	1,142,159	1,217,108
REPORTED CONSUMPTION	1,027,216	1,109,635	1,163,358
UNACCOUNTED FOR (Stockpiles, etc.)	73,206	32,524	53,750
PRODUCTION OF REFINED PRIMARY LEAD:			
From Domestic Ores & Base Bullion . . .	288,078	245,645	239,660
From Foreign Ores & Base Bullion . . .	161,487	130,418	155,072
ARIZONA MINE PRODUCTION	5,937	6,966	5,815
WORLD MINE PRODUCTION	2,660,000	2,765,000	2,800,000
U.S. MINE PRODUCTION AS % OF REPORTED CONSUMPTION	25.50%	21.35%	21.78%
MINE PRODUCTION & SECONDARY AS % OF " "	69.58%	61.39%	64.20%
AVG. PRICE OF LEAD - N. Y. (E.&M.J.) . . .	10.871¢	9.631¢	11.14¢
AVG. PRICE OF LEAD - LONDON	8.03¢	7.06¢	7.93¢

TABLE II

MINE PRODUCTION OF RECOVERABLE LEAD IN THE UNITED STATES, BY STATES

STATE	Short Tons Years 1954-58 Average	Source: U.S.B.M. 1959, 1960, 1961, 1962, 1963				
	1954-1958 (average)	1959	1960	1961	1962	1963
Arizona	10,906	9,999	8,495	5,937	6,966	5,815
Arkansas	- -	38	- -	- -	- -	- -
California	4,766	227	440	103	455	823
Colorado	17,720	12,907	18,080	17,755	17,411	19,918
Idaho	64,605	62,395	42,907	71,476	84,058	75,759
Illinois	3,238	2,570	3,000	3,430	3,610	2,901
Kansas	4,544	481	781	1,449	970	1,027
Kentucky	247	409	558	656	743	831
Missouri	122,783	105,165	111,948	98,785	60,982	79,844
Montana	14,445	7,672	4,879	2,643	6,121	5,000
Nevada	4,569	1,357	987	1,791	771	1,126
New Mexico	3,327	829	1,996	2,332	1,134	1,014
New York	1,216	481	775	879	1,063	1,009
North Carolina	5	- -	424	318	219	62
Oklahoma	10,311	601	936	980	2,710	3,192
Utah	45,961	36,630	39,398	40,894	38,199	45,028
Virginia	3,286	2,770	2,152	3,733	4,059	3,500
Washington	10,738	10,310	7,725	8,053	6,033	5,374
Wisconsin	1,698	745	1,165	680	1,394	1,116
Other States	- - 8	- -	23	27	58	30
TOTAL	324,373	255,586	246,669	261,921	236,956	253,369

TABLE III

WORLD MINE PRODUCTION OF RECOVERABLE LEAD, BY COUNTRIES

IN THOUSAND SHORT TONS

Source: U.S.B.M.

Year	U.S.	Mexico	Canada	Peru	Australia	Rest of Free World	Total Free World	Communist Controlled Countries	Total World (Estimated)
1956	353	220	189	142	335	682	1,921	569	2,490
1957	338	237	181	151	373	728	2,008	602	2,610
1958	267	223	186	148	366	728	1,918	642	2,560
1959	256	210	187	127	354	707	1,841	689	2,530
1960	247	210	205	142	341	708	1,853	707	2,560
1961	262	200	233	148	300	708	1,851	809	2,660
1962	237	213	211	147	414	705	1,927	838	2,765
1963	253	209	199	163	459	672	1,955	845	2,800

TABLE IV

TOTAL LEAD IMPORTED INTO THE UNITED STATES, AND EXPORTED FROM U. S.

Source: Bureau of The Census

Short Tons

	IMPORTS	EXPORTS	NET IMPORTS
Avg. 1948-1952	434,909	3,500	431,409
1953	552,278	4,547	547,731
1954	443,243	4,592	438,651
1955	462,208	4,720	457,488
1956	479,875	7,819	472,056
1957	532,055	6,130	525,925
1958	577,110	3,386	573,724
1959	411,087	4,121	406,966
1960	359,656	5,843	353,813
1961	409,402	11,733	397,669
1962	403,027	7,467	395,560
1963	389,081	3,513	385,568

TABLE V

CONSUMPTION OF LEAD IN UNITED STATES

Source: U. S. B. M.

Year	Metal Products	Storage Batteries	Pigments	Tetra- ethyl Lead	Other Uses	Total
1953	501,482	367,575	129,590	162,443	40,514	1,201,604
1954	442,384	337,272	116,409	160,436	38,370	1,094,871
1955	495,320	380,033	131,435	165,133	40,723	1,212,644
1956	489,586	370,771	120,370	191,990	37,000	1,209,717
1957	448,948	361,015	115,361	177,001	35,790	1,138,115
1958	382,822	312,725	95,901	159,412	35,527	986,387
1959	407,520	380,732	103,671	160,020	39,206	1,091,149
1960	369,731	353,196	98,541	163,826	35,878	1,021,172
1961	359,302	367,998	94,824	169,802	35,290	1,027,216
1962	380,623	419,906	102,968	168,926	37,212	1,109,635
1963	396,797	439,081	99,075	192,811	35,594	1,163,358

TABLE VI

U. S. LEAD CONSUMPTION - YEARS 1961, 1962 & 1963

Source: U.S.B.M.

	1961	1962	1963
Metal Products:			
Ammunition	45,837	47,779	49,894
Bearing metals	17,757	16,472	21,713
Brass and bronze	20,114	20,607	21,943
Cable Covering	57,458	56,676	57,707
Calking lead	67,379	72,648	76,308
Casting metals	6,873	7,355	7,856
Collapsible tubes	11,220	11,972	14,832
Foil	2,968	3,720	3,952
Pipes, traps and bends	19,098	19,819	20,100
Sheet lead	28,102	28,540	26,495
Solder	54,838	66,873	67,945
Storage battery grids, posts, etc.	186,028	217,525	222,286
Storage battery oxides	181,970	202,381	216,795
Terne metal	965	1,402	1,983
Type metal	26,693	26,760	26,069
Total	727,300	800,529	835,878
Pigments:			
White lead	7,615	11,091	8,846
Red Lead and litharge	72,022	76,325	70,649
Pigment colors	11,273	11,660	11,767
Other ^{1/}	3,914	3,892	7,813
Total	94,824	102,968	99,075
Chemicals;			
Tetraethyl lead	169,802	168,926	192,811
Miscellaneous	2,588	2,715	632
Total	172,390	171,641	193,443
Miscellaneous Uses:			
Annealing	5,066	5,306	4,847
Galvanizing	1,444	1,146	1,631
Lead plating	243	236	220
Weights and ballast.	8,890	10,330	12,207
Total	15,643	17,018	18,905
Other uses, unclassified	17,059	17,479	16,057
Total Reported ^{2/}	1,027,216	1,109,635	1,163,358

^{1/} Includes lead content of leaded zinc oxide production.^{2/} Includes lead content of scrap used directly in fabricated products.

TABLE VII

IMPORTS AND EXPORTS OF LEAD INTO AND FROM UNITED STATES

YEARS 1961, 1962 & 1963

SHORT TONS

Source: U. S. Dept. of Commerce

Country of Origin	Year 1961	Year 1962	Year 1963
Ore, Matte, etc. (Lead Content)	147,186	138,906	147,742
Canada	34,361	27,728	23,634
Mexico	1,166	1,180	1,071
Guatemala	9,817	2,135	305
Honduras	5,512	5,489	6,809
Colombia	722	439	9
Peru	28,970	32,750	43,950
Bolivia	11,370	8,242	9,791
Republic of So. Africa	34,089	33,881	34,273
Australia	20,031	26,544	27,633
Other Countries	1,148	518	267
Base Bullion	422	4,599	5,437
Australia - Oceania	-	2,514	1,937
South America	60	2,080	2,647
North America	362	5	851
Europe	-	-	2
Pigs & Bars (Lead Content)	256,852	257,201	227,027
Canada	54,717	56,807	29,619
Mexico	81,328	65,892	74,466
Peru	26,195	22,115	23,486
Belgium-Luxembourg	-	2,980	11,235
W. Germany	842	914	277
Spain	8,529	4,104	7,694
Yugoslavia	30,347	31,909	31,063
Australia	54,891	72,133	45,596
Other Countries	3	347	3,591
Reclaimed Scrap, etc.	4,942	2,321	8,875
GRAND TOTAL IMPORTS	409,402	403,027	389,081
GRAND TOTAL EXPORTS	11,733	7,467	3,513
EXCESS IMPORTS	397,669	395,560	385,468

Z I N C I N D U S T R Y

C O N T E N T S

	Page
Physical Properties of Zinc	1
Metal Duties in Effect Jan. 1, 1962	2
History of Zinc in 1963. U.S.B.M. Annual Report	3 - 5
Salient Zinc Statistics 1961, 1962, 1963 . . . TABLE I .	6
Mine Production of Recoverable Zinc by States in 1961, 1962, and 1963 . . . TABLE II .	7
World Mine Production of Recoverable Zinc by Countries TABLE III .	8
Total Zinc Imports & Exports - United States . . TABLE IV .	8
Consumption of Slab Zinc in United States 1950 to 1963 . . . TABLE V .	9
Slab Zinc Available to Consumers 1961, 1962, 1963 . . TABLE VI .	10
Zinc Imports and Exports - United States 1961, 1962, 1963	11

Z I N C

PHYSICAL PROPERTIES *

Zinc is a bluish white, hard, brittle metal with a microscopic crystalline structure when broken. The commercial metal is now known in the U. S. as slab zinc, rather than by the older term spelter.

The commercial importance of zinc is based largely upon its properties as a corrosion inhibitor especially as a protective coating on steel in galvanized products and upon its use in alloys. On account of low strength and brittleness, the pure metal, when used alone, has few uses except as sheet metal and other rolled forms.

Zinc compounds are important as pigments, fillers, and chemicals, with a wide range of end uses.

Symbol - Zn. Atomic Weight - 65.38 Specific Gravity - 7.13

Melting Point - °F - 787.03. Boiling Point, °F - 1,663

Electrical Resistivity - Microhm per c.c. - 5.916

Tensile Strength, cast, Lb. per sq. in. - 9,000. Rolled - 21,000

Crystal Structure - close packed hexagonal. Valence - 2

* U.S.B.M.'s "MATERIALS SURVEY" - September, 1952

METAL DUTIES ON ZINC

According to the Tariff Act of 1930, Amended.

Published by American Metal Market, "Metal Statistics, 1962" page 254.

Following rates in effect on January 1, 1962:

<u>ZINC</u> - Zinc-bearing ores, except pyrites with not over 3% zinc	* 0.6 c lb.
Slabs, blocks, pigs and zinc dust	* 0.7 c lb.
Sheets	1 c lb.
Sheets coated with other metals, except precious.	1 1/8 c lb.
Old, fit only for remanufacture	0.75 c lb.
Oxide, (dry powder)	0.6 c lb.
Oxide, (with oil or water)	1 c lb.
Die -Casting alloys (P.397 of T.C. 1958)	19%

ZINC INDUSTRY IN 1963

Prepared August 17, 1964, By H. J. Schroeder, Physical Scientist
Received in Phoenix September 18, 1964

The domestic zinc industry in 1963 recorded a slab zinc consumption of 1.1 million tons, 7 per cent above 1962 and the largest since 1955, according to the Bureau of Mines, U. S. Department of the Interior. Mine production increased 5 per cent to 529,000 tons and slab zinc output was up 2 per cent to 953,000 tons. Producer stocks declined from 145,000 to 48,000 tons, the lowest yearend level since 1955. Consumer stocks increased from 80,000 tons to 97,000 tons during the year.

The quoted price of Prime Western grade zinc, East St. Louis, advanced from 11.5 to 13.0 cents per pound in three $\frac{1}{2}$ -cent increases during the year.

Import quotas, established in 1958, remained in effect. General imports of ores and concentrates decreased 20 per cent to 373,000 tons and for metal increased 2 per cent to 145,000 tons. Exports of slab zinc decreased 6 per cent to 34,000 tons.

Government stockpiles contained 1.6 million tons of zinc. No additions or withdrawals were made during 1963.

The International Lead-Zinc Study Group held a meeting at Geneva in November.

Production. - Mines in the United States produced 529,300 tons of recoverable zinc, an increase of 5 per cent over that of 1962 and the highest annual output since 1957. The only pronounced variation in the year's production pattern was a slightly higher than average rate during the last quarter. States east of the Mississippi River produced 51 per cent of the total output. Western States, 46 per cent; and West Central States, 3 per cent.

The five largest zinc producing states, ranked in descending order, were: Tennessee with an increase of 34 per cent to a record 95,800 tons; Idaho with a slight increase to 63,300 tons, the highest since 1953; New York with a slight decrease to 53,500 tons; Colorado, up 11 per cent to 48,100 tons; and Utah, up 5 per cent to 36,200 tons. Montana, New Jersey, Pennsylvania, Arizona and Virginia followed in the ranked order of output.

Smelter output of slab zinc increased for the fifth consecutive year and was the highest for any year since 1957. Included in the 952,900 tons of slab zinc output was molten zinc, used directly in alloying operations. Of the total, 892,600 tons was primary metal and 60,300 tons was redistilled secondary zinc. Primary output was 53 per cent from domestic ores and 47 per cent from foreign ores; 40 per cent was electrolytic and 60 per cent was distilled slab zinc. Of the 60,300 tons of redistilled secondary slab zinc, primary smelters produced 78 per cent of the total, and the remainder was obtained from secondary smelters.

Consumption. - Slab zinc consumption, as reported by approximately 700 plants, was 1,105,100 tons, 7 per cent higher than in 1962 consumption and only

1 per cent below the record of 1,119,800 tons used in 1955. The quantity of zinc used for zinc-base alloys increased 11 per cent to 468,600 tons to retain the leading use position and to achieve a historically high record. Consumption of zinc in galvanizing rose 8 per cent to 420,300 tons. Zinc consumed in rolled zinc was 42,200 tons, unchanged from 1962; for brass products there was a recorded decrease of 1 per cent to 128,200 tons; and for zinc oxide production a 13-per cent decrease to 16,000 tons.

Stocks. - Stocks of slab zinc at producer plants were 144,700 tons at the beginning of the year, increased about 4,000 tons by the end of March and then rapidly declined to 47,900 tons by yearend, the lowest yearend stocks recorded since 1955. Stocks of slab zinc at consumer plants of 79,900 tons at the start of the year were drawn down about 12,000 tons by the end of May, followed by a generally upward trend resulting in yearend stocks of 96,600 tons. An additional 8,400 tons of slab zinc was in transit to consumer plants on December 31.

There was 1,257,000 tons of zinc in the national (strategic) stockpile and 324,000 tons in the supplementary stockpile throughout the year; a total of 1,581,000 tons. On June 17, the Director of the Office of Emergency Planning established a conventional war stockpile objective of zero for zinc. The previous maximum objective, based on different criteria, had been 178,000 tons.

Prices. - The quoted price of Prime Western grade zinc, East St. Louis, was 11.5 cents a pound at the start of the year. Three price increases of $\frac{1}{2}$ -cent each on July 2, July 30, and December 2 resulted in the yearend price of 13.0 cents per pound.

On the London Metal Exchange the yearly average quotation was £76.766 per ton (equivalent to 9.60 cents per pound computed at the exchange rate recorded by the Federal Reserve Board). For January the average was £67.585 (8.45 cents per pound). The average quotation rose for the next 4 successive months to reach £76.016 (9.50 cents) for May, declined slightly in June and July, then resumed the upward trend, reaching an average quotation in December of £94.709 (11.84 cents).

Foreign Trade. - Import quotas imposed October 1, 1958, by Presidential Proclamation 3257, dated September 22, 1958, remained in effect through 1963. Quotas limited annual commercial imports of unmanufactured zinc (not including zinc fume) to 379,840 tons in ores and concentrates and 141,120 tons as metal. Quotas established were 80 per cent of the average commercial imports into the United States during 1953-57.

General imports in ores and concentrates decreased 20 per cent to the lowest level since 1951. Mexico, Canada, and Peru supplied 93 per cent of these imports. Zinc metal imports increased 2 per cent to 144,800 tons; Canada, Belgium-Luxembourg and Mexico supplied 75 per cent of the total. Exports of slab zinc decreased 6 per cent to 33,900 tons. India received 89 per cent and the Republic of Korea received about 6 per cent of total exports.

Tariff. - New Tariff Schedules of the United States which went into effect August 31, 1963, revised the method of computing duties on zinc ores and concentrates. Under the new schedules the rate of duty is 0.67 cents per pound imposed on the zinc content after certain allowable deductions for processing

losses. Formerly, the rate of duty was 0.6 cent per pound imposed on the total zinc content. For a given importation the net result is that the total duty is approximately the same using the new or the old method.

All other duties on unmanufactured zinc and zinc containing materials remained unchanged and were: slab zinc, 0.7 cent per pound; zinc scrap, 0.75 cent per pound; zinc fume, 15 per cent ad valorem; and zinc dust, at 0.7 cent per pound.

World Production. - World mine production of zinc increased 2 per cent to 3,970,000 tons. Countries with recorded increases in excess of 10,000 tons were Australia, Finland, North Korea, Peru, Spain, South-West Africa, and the United States. Countries with decreases in excess of 10,000 tons were Mexico, Italy and Yugoslavia.

Smelter production for the world was 3,830,000 tons compared to 3,750,000 tons in 1962. Increases in excess of 10,000 tons were recorded for Australia, Japan, Peru, Northern Rhodesia and the United States. The only decrease in excess of 10,000 tons was in West Germany.

TABLE I

SALIENT STATISTICS OF THE U. S. ZINC INDUSTRY

ARIZONA AND WORLD MINE PRODUCTION OF RECOVERABLE ZINC

YEARS 1961, 1962 & 1963

Source: U.S.B.M.	Unit: Short Tons		
	Year 1961	Year 1962	Year 1963
Producers' Stocks, Beginning of Period . .	185,882	145,540	144,746
U.S. Mine Production, Recoverable Zinc . .	464,390	505,491	529,254
Imports-Ore & Concts., Zinc Content . . .	415,485	469,152	372,769
Imports-Zinc Metal	127,508	141,959	144,757
Redistilled Secondary	55,237	58,880	60,303
TOTAL SUPPLY	1,248,502	1,321,022	1,251,829
Producers' Stocks, End of Period	145,540	144,746	47,110
Exports - Slabs, Pigs, Blocks	50,054	36,102	33,853
SUB-TOTAL	195,594	180,848	80,963
APPARENT CONSUMPTION	1,052,908	1,140,174	1,170,866
REPORTED CONSUMPTION-SLAB ZINC	931,213	1,031,821	1,105,113
CONSUMED DIRECTLY IN ORES	93,000	96,600	99,600
TOTAL REPORTED ZINC CONSUMPTION. . .	1,024,213	1,128,421	1,204,713
Production of Primary Slab Zinc			
By Sources: From Domestic Ores	419,206	448,095	474,007
From Foreign Ores	427,589	431,300	418,577
By Methods: Electrolytic	324,399	354,138	358,093
Distilled	522,396	525,257	534,491
ARIZONA MINE PRODUCTION	29,585	32,888	25,419
WORLD MINE PRODUCTION	3,720,000	3,870,000	3,970,000
U. S. Mine Prod. - % of Reported Consumption	45.34%	47.96%	45.83%
AVG. PRICE OF ZINC, E. ST. LOUIS (E.&M.J.)	11.542¢	11.625¢	11.997¢

TABLE II

MINE PRODUCTION OF RECOVERABLE ZINC, BY STATES, IN 1961-1963

Source: U.S.B.M.		Short Tons		
State	1961	1962	1963	
Arizona	29,585	32,888	25,419	
Arkansas	37	211	- -	
California	304	322	101	
Colorado	42,647	43,351	48,109	
Idaho	58,295	62,865	63,267	
Illinois	26,795	27,413	20,337	
Kansas	2,446	3,943	3,508	
Kentucky	1,147	1,172	1,461	
Missouri	5,847	2,792	321	
Montana	10,262	37,678	32,941	
Nevada	453	281	571	
New Jersey	112	15,309	32,738	
New Mexico	22,900	22,015	12,938	
New York	54,763	53,654	53,495	
North Carolina	- -	- -	13	
Oklahoma	3,148	10,013	13,245	
Pennsylvania	23,428	24,308	27,389	
Tennessee	81,734	71,548	95,847	
Utah	37,239	34,313	36,179	
Virginia	29,163	26,479	23,988	
Washington	20,217	21,644	22,270	
Wisconsin	13,865	13,292	15,114	
Oregon	3	- -	3	
TOTAL	464,390	505,491	529,254	

TABLE III

WORLD MINE PRODUCTION OF RECOVERABLE ZINC, BY COUNTRIES

In Thousand Short Tons

- Source: U. S. B. M.

	U.S.	CANADA	MEXICO	PERU	ITALY	AUSTRALIA	REST OF FREE WORLD	TOTAL FREE WORLD	COMMUNIST CONTROLLED COUNTRIES*	TOTAL WORLD ESTIMATED
AVG.										
1949-1953	622	343	228	117	106	225	569	2,210	390	2,600
1954	473	377	246	175	130	283	620	2,434	496	2,930
1955	515	433	297	183	132	287	776	2,623	587	3,210
1956	542	423	274	193	135	312	865	2,744	676	3,420
1957	532	414	268	170	145	326	917	2,772	738	3,510
1958	412	424	247	142	151	295	904	2,575	775	3,350
1959	425	396	291	158	145	279	880	2,574	786	3,360
1960	435	406	289	149	141	325	938	2,683	827	3,510
1961	464	416	296	194	146	323	947	2,786	934	3,720
1962	505	502	276	183	146	342	946	2,900	970	3,870
1963	529	497	266	200	118	394	996	3,000	970	3,970

* Communist Controlled Countries: U.S.S.R., Bulgaria, E. Germany, Poland, N. Korea, China, Yugoslavia.

TABLE IV

TOTAL ZINC IMPORTED INTO UNITED STATES, AND EXPORTED FROM U. S.

Source: Bureau of Census - In Short Tons

	IMPORTS			EXPORTS		NET IMPORTS
	Ores	Blocks, Pigs or Slabs	TOTAL	Slabs, Pigs or Blocks		
1948-1952	307,274	115,976	423,250	46,277		376,973
1953	513,724	234,576	748,300	17,969		730,331
1954	455,427	156,858	612,285	24,994		587,291
1955	478,044	195,696	673,740	18,069		655,671
1956	525,350	244,978	770,328	8,813		761,515
1957	526,014	269,007	795,021	10,785		784,236
1958	462,008	195,199	657,207	1,736		655,471
1959	496,381	156,860	653,241	11,636		641,605
1960	456,221	120,767	576,988	75,144		501,844
1961	415,485	127,508	542,993	50,054		492,939
1962	469,152	141,959	611,111	36,102		575,009
1963	372,769	144,757	517,526	33,853		483,673

Arizona Department of Mineral Resources

September, 1964

TABLE V

CONSUMPTION OF SLAB ZINC IN UNITED STATES

Source: U.S.B.M. - Short Tons

	Galvan- izing	Brass Products	Zinc Base Alloy	Rolled Zinc	Zinc Oxide	Other Uses	Total Con- sumption
1950	441,686	139,373	289,527	68,444	18,187	9,917	967,134
1951	400,279	143,292	296,434	64,085	18,223	11,658	933,971
1952	377,688	155,608	236,689	51,318	17,205	14,275	852,783
1953	406,988	178,182	307,445	54,649	20,675	17,988	985,927
1954	403,463	108,268	290,846	47,486	18,701	15,535	884,299
1955	451,141	146,243	430,807	51,589	22,433	17,599	1,119,812
1956	439,146	124,004	360,507	47,359	19,160	18,614	1,008,790
1957	367,757	112,390	376,039	41,269	20,428	17,737	935,620
1958	381,229	101,375	316,830	40,616	13,331	14,946	868,327
1959	361,027	129,278	389,331	42,949	18,248	15,364	956,197
1960	371,589	99,023	338,373	38,696	15,593	14,610	877,834
1961	382,077	128,523	341,766	41,204	18,137	19,506	931,213
1962	388,570	129,805	423,608	42,233	18,517	29,088	1,031,821
1963	420,287	128,237	468,619	42,166	16,037	29,767	1,105,113

Arizona Department of Mineral Resources

September, 1964

TABLE VI

SLAB ZINC AVAILABLE TO CONSUMERSYEARS 1961, 1962 and 1963

Source: U. S. B. M.		Units: Short Tons		
		Year 1961	Year 1962	Year 1963
<u>SUPPLY:</u>				
Stocks at Primary Smelters Jan. 1st. . .		178,209	143,494	142,059
Stocks at Secondary Plants Jan. 1st. . .		7,673	3,393	2,687
Production - Primary		846,795	879,395	892,584
- Secondary		55,237	58,880	60,303
Imports of Slab Zinc		127,508	141,957	144,757
TOTAL AVAILABLE		1,215,422	1,227,119	1,242,390
<u>WITHDRAWN:</u>				
Exports of Slab Zinc		50,054	36,102	33,853
Shipments to Gov't Account 1/		-	-	-
Stocks at Primary Smelters End of Period		142,147	142,059	46,374
Stocks at Secondary Smelters " " "		3,393	2,687	1,536
TOTAL WITHDRAWN		195,594	180,848	81,763
AVAILABLE TO CONSUMERS		1,019,828	1,046,271	1,160,627
REPORTED CONSUMPTION		931,213	1,031,821	1,105,113

1/ As reported by the American Zinc Institute.

U. S. CONSUMPTION OF SLAB ZINC

	1961	1962	1963
GALVANIZERS	382,077	388,570	420,287
DIE CASTERS	341,766	423,608	468,619
BRASS PRODUCTS	128,523	129,805	128,237
ROLLED ZINC	41,204	42,233	42,166
ZINC OXIDE & OTHER	37,643	47,605	45,804
TOTAL SLAB ZINC CONSUMPTION .	931,213	1,031,821	1,105,113

TABLE VII

IMPORTS AND EXPORTS OF ZINC INTO AND FROM UNITED STATES

YEARS 1961, 1962 and 1963

Source: A.B.M.S., U. S. Dept. of Commerce

Country of Origin	Year 1961	Year 1962	Year 1963
Ores (Zinc Content)	415,485	469,152	372,769
Australia	3,517	10,957	3,724
Bolivia	571	1,791	4,395
Canada	119,399	194,179	134,303
Guatemala	13,119	2,511	1,430
Honduras	6,857	7,048	8,234
Mexico	186,182	165,004	138,185
Peru	75,320	77,499	73,788
Spain	- - -	- - -	- - -
Republic of So. Africa	7,145	9,588	8,614
Other Countries	3,375	575	96
Blocks, Pigs or Slabs	127,508	141,959	144,757
Australia	1,029	1,750	583
Belgian Congo	11,419	10,882	9,590
Belgium-Luxembourg	12,855	23,231	21,904
Canada	70,568	72,826	73,817
West Germany	778	1,162	6,103
Italy	1,820	992	907
Mexico	8,597	12,336	13,219
Peru	7,518	7,614	7,574
Rhodesia - Nyasaland	1,399	4,643	1,982
Yugoslavia	3,199	3,311	1,185
Other Countries	8,326	3,212	7,893
TOTAL IMPORTS	542,993	611,111	517,526
TOTAL EXPORTS (Slab Zinc)	50,054	36,102	33,853
EXCESS IMPORTS	492,939	575,009	483,673

ARIZONA LEAD AND ZINC PRODUCTION IN 1963

Source: U. S. B. M.

Lead production was 1,151 tons (17 per cent) lower in quantity but only 2 per cent lower in value compared with that of 1962; it was the lowest production of lead reported in the State since 1934. Most of the production came from lead-zinc ores of the Iron King mine operated by Shattuck Denn Mining Corp. in Yavapai County. The Flux mine in the Harshaw district of Santa Cruz County, operated by Nash-McFarland, was the second largest producer. Yavapai County, with five operations, led the State with 5,383 tons or 93 per cent of the production. Santa Cruz County, with four operations, was second, accounting for 6 per cent of the output. Eleven operations in four counties - Cochise, Maricopa, Pima, and Pinal cumulatively - furnished 1 per cent of the production.

Zinc production in Arizona was 23 per cent lower in quantity and 23 per cent lower in value. Following the Iron King mine, the principal producers of zinc in the State, in order of production, were the Copper Queen and Old Dick mines (Cypress Mines Corp.), Atlas mine (B.S.&K. Mining Co.), Johnson Camp mine (McFarland and Hullinger), and Flux mine (Nash & McFarland). These six mines supplied 99 per cent of the Arizona zinc output.

See U.S.B.M. TABLE XIX next page, showing details of Arizona's production of lead and zinc in 1963.

TABLE XIX

MINE PRODUCTION OF GOLD, SILVER, COPPER, LEAD AND ZINC IN ARIZONA IN THE YEAR 1963
BY CLASS OF ORE IN TERMS OF RECOVERABLE METALS

Source	Number of mines ^{1/}	Material sold or treated (short tons)	Gold (troy ounces)	Silver (troy ounces)	Copper (pounds)	Lead (pounds)	Zinc (pounds)
Lode ore:							
Dry gold - - - - -	4	80	50	76	300	-----	-----
Dry gold-silver- - - - -	8	117,705	383	12,519	1,903,400	-----	-----
Dry silver - - - - -	22	31,068	5	10,307	272,600	-----	-----
Total - - - - -	34	148,852	438	22,902	2,176,300	-----	-----
Copper - - - - -	34	80,615,132	121,177	4,494,239	1,217,337,700	22,200	506,300
Copper-zinc- - - - -	4	116,251	154	45,560	8,608,000	57,800	15,575,500
Lead - - - - -	9	2,127	33	10,982	7,400	355,900	22,100
Lead-zinc - - - - -	2	293,021	17,486	766,898	657,100	11,105,500	32,531,200
Zinc- - - - -	2	8,454	-----	6,299	18,500	84,900	2,197,400
Total - - - - -	50	81,034,985	138,850	5,323,978	1,226,628,700	11,626,300	50,832,500
Other "lode" material:							
Gold mill cleanup - - - - (2/)		20	43	43	-----	-----	-----
Gold tailings - - - - -	1	50	26	13	-----	-----	-----
Gold-silver tailings - - -	2	28,891	570	11,835	73,000	-----	-----
Copper cleanup - - - - - (2/)		1,715	49	1,220	526,400	-----	100
Copper precipitates- - - -	14	67,841	---	---	91,236,600	-----	-----
Lead cleanup - - - - - (2/)		4	1	7	-----	3,700	-----
Uranium ore - - - - -	-----	-----	---	13,055	1,312,100	-----	5,400
Total - - - - -	17	98,521	689	26,173	93,149,000	3,700	5,500
Total "lode" material - -	90	81,282,358	139,977	5,373,053	1,321,954,000	11,630,000	50,838,000
Placer - - - - -	4	-----	53	5	-----	-----	-----
Total, all sources - - -	94	81,282,358	140,030	5,373,058	1,321,954,000	11,630,000	50,838,000

^{1/} Detail will not necessarily add to totals because same mines produce more than one class of material.

^{2/} From properties not classed as mines.

TREMENDOUS LOSSES SUFFERED BY LEAD-ZINC INDUSTRY IN U.S. AND ARIZONA
PRODUCTION AND VALUE OF LEAD AND ZINC IN PERIOD 1947-1952 COMPARED
WITH 11-YEAR PERIOD, 1953-1963

The attached tables (II and III) indicate the tremendous losses suffered by the U. S. and Arizona lead-zinc industry during the past eleven years, and it is not surprising that the U. S. Tariff Commission found, in three separate findings, "serious injury" to the industry due to excessive imports.

During the six-year period (1947-1952) U. S. lead production averaged 398,960 tons per year with a value of \$126,422,000, and an average price of 15.844 cents per pound. For the eleven-year period (1953-1963) the average annual lead production was only 292,687 tons with a value of \$76,685,000, and an average price of 13.102 cents per pound. This was an annual loss of \$49,737,000, a drop in price of 2.742 cents per pound, and a loss in annual production of 106,323 tons.

Arizona's loss for the corresponding periods was 16,191 tons of lead per year amounting to \$5,583,000 per year.

For the six-year period (1947-1952) U. S. Zinc production averaged 638,559 tons per year with a value of \$180,546,000, and an average price of 14.137 cents per pound. For the eleven-year period (1953-1963) the average annual zinc production was 489,243 tons with a value of \$114,636,000 and an average price of 11.716 cents per pound. The result an annual loss of \$65,910,000, a drop in price of 2.421 cents per pound, and a loss in annual production of 149,316 tons of zinc.

Arizona's loss for the corresponding periods was 27,578 tons of zinc per year, amounting to \$8,941,000 per year.

The combined annual U. S. loss of 255,639 tons of lead-zinc worth \$115,647,000 would never have happened if the lead-zinc industry had been given sufficient protection against excessive imports of lead and zinc. The annual production of lead should be 400,000 tons, and of zinc 650,000 tons. Arizona's annual production of lead should be 25,000 to 30,000 tons, and of zinc 55,000 to 60,000 tons. The annual loss of Arizona's lead industry amounting to \$5,583,000, and of Arizona's zinc industry amounting to \$8,941,000 (total almost \$15 million) have been tragic.

TABLE I

PRODUCTION OF LEAD AND ZINC IN ARIZONA

Year	No. of Mines Est. By U.S.B.M.	Tons Material Treated	Tons Lead Produced	Tons Zinc Produced	Value of Lead Produced	Value of Zinc Produced	Average Price Lead	Average Price Zinc
1948	189	797,292	29,899	54,478	\$10,703,842	\$14,491,148	17.9¢	13.3¢
1949	174	968,301	33,568	70,658	\$10,607,488	\$17,523,184	15.8¢	12.4¢
1950	139	888,099	26,383	60,480	\$ 7,123,410	\$17,176,320	13.5¢	14.2¢
1951	136	954,985	17,394	52,999	\$ 6,018,324	\$19,291,636	17.3¢	18.2¢
1952	112	819,752	16,520	47,143	\$ 5,319,440	\$15,651,476	16.1¢	16.6¢
1953	68	452,660	9,428	27,530	\$ 2,470,136	\$ 6,331,900	13.1¢	11.5¢
1954	45	346,313	8,385	21,461	\$ 2,297,490	\$ 4,635,576	13.7¢	10.8¢
1955	46	408,486	9,817	22,684	\$ 2,925,466	\$ 5,580,264	14.9¢	12.3¢
1956	46	452,191	11,999	25,580	\$ 3,767,686	\$ 7,008,920	15.7¢	13.7¢
1957	45	481,327	12,441	33,905	\$ 3,558,126	\$ 7,865,960	14.3¢	11.6¢
1958	31	388,987	11,890	28,532	\$ 2,782,260	\$ 5,820,528	11.7¢	10.2¢
1959	22	449,166	9,999	37,325	\$ 2,299,770	\$ 8,584,750	11.5¢	11.5¢
1960	22	515,075	8,495	35,811	\$ 1,987,830	\$ 9,239,238	11.7¢	12.9¢
1961	22	433,680	5,937	29,585	\$ 1,291,000	\$ 6,804,550	10.9¢	11.5¢
1962	16	487,115	6,966	32,888	\$ 1,342,000	\$ 7,630,016	9.6¢	11.6¢
1963	17	419,853	5,815	25,419	\$ 1,256,000	\$ 5,846,000	11.1¢	12.0¢

Arizona Department of Mineral Resources

September, 1964

TABLE II

U. S. AND ARIZONA MINE PRODUCTION OF RECOVERABLE LEAD

VALUE OF PRODUCTION BY YEARS FROM 1947 TO 1963 INCLUSIVE

L E A D

Year	Avg.Price cts./lb	U. S. Mine Production Tons	Value	Arizona Mine Production Tons	Value
1947	14.673	384,221	\$ 112,750,000	28,566	\$ 8,383,000
1948	18.043	390,476	140,907,000	29,899	10,789,000
1949	15.364	409,908	125,957,000	33,568	10,315,000
1950	13.296	430,827	114,566,000	26,383	7,016,000
1951	17.500	388,164	135,857,000	17,394	6,088,000
1952	16.467	390,162	128,496,000	16,520	5,441,000
TOTAL		2,393,758	\$ 758,533,000	152,330	\$ 48,032,000
6 YR. Avg.	15.844	398,960	\$ 126,422,000	25,388	\$ 8,005,000
1953	13.489	342,644	\$ 92,438,000	9,428	\$ 2,543,000
1954	14.054	325,419	91,470,000	8,385	2,357,000
1955	15.138	338,025	102,340,000	9,817	2,972,000
1956	16.013	352,826	112,996,000	11,999	3,843,000
1957	14.658	338,216	99,151,000	12,441	3,647,000
1958	12.109	267,377	64,753,000	11,890	2,880,000
1959	12.211	255,586	62,419,000	9,999	2,442,000
1960	11.948	246,669	58,944,000	8,495	2,030,000
1961	10.871	261,921	56,947,000	5,937	1,291,000
1962	9.631	236,956	45,642,000	6,966	1,342,000
1963	11.137	253,369	56,435,000	5,815	1,295,000
TOTAL		3,219,008	\$ 843,535,000	101,172	\$ 26,642,000
11 YR. Avg.	13.102	292,637	\$ 76,685,000	9,197	\$ 2,422,000
Annual Loss 11 Yr Period		106,323	\$ 49,737,000	16,191	\$ 5,583,000

TABLE III

U. S. AND ARIZONA MINE PRODUCTION OF RECOVERABLE ZINC
VALUE OF PRODUCTION BY YEARS FROM 1947 to 1963 INCLUSIVE

Year	Avg.Price cts./lb	<u>Z I N C</u>		Arizona Mine Production	
		U. S. Mine Tons	Production Value	Tons	Value
1947	10.500	637,608	\$ 133,898,000	54,644	\$ 11,475,000
1948	13.589	629,977	171,215,000	54,478	14,806,000
1949	12.144	593,203	144,077,000	70,658	17,161,000
1950	13.866	623,375	172,874,000	60,480	16,772,000
1951	18.000	681,189	245,228,000	52,999	19,080,000
1952	16.215	666,001	215,984,000	47,143	15,288,000
TOTAL		3,831,353	\$1,083,276,000	340,402	\$ 94,582,000
6 Yr. Avg.	14.137	638,559	\$ 180,546,000	56,734	\$ 15,764,000
1953	10.855	547,430	\$ 118,847,000	27,530	\$ 5,977,000
1954	10.681	473,471	101,143,000	21,461	4,584,000
1955	12.299	514,671	126,599,000	22,684	5,580,000
1956	13.494	542,340	146,367,000	25,580	6,904,000
1957	11.399	531,735	121,225,000	33,905	7,730,000
1958	10.309	412,005	84,947,000	28,532	5,883,000
1959	11.448	425,303	97,377,000	37,325	8,546,000
1960	12.946	435,427	112,741,000	35,811	9,272,000
1961	11.542	464,390	107,200,000	29,585	6,829,000
1962	11.625	505,648	117,563,000	32,888	7,646,000
1963	11.997	529,254	126,989,000	25,419	6,099,000
TOTAL		5,381,674	\$ 1,260,998,000	320,720	\$ 75,050,000
11 Yr. Avg.	11.716	489,243	\$ 114,636,000	29,156	\$ 6,823,000
Annual Loss 11 Yr Period		149,316	\$ 65,910,000	27,578	\$ 8,941,000

RESOLUTION PASSED BY AMERICAN MINING CONGRESS
AT CONVENTION IN PORTLAND, OREGON, SEPTEMBER, 1964

IMPORT CONTROLS

Adequate import controls, properly devised and applied, are required to assure the maintenance of an economically sound and responsive domestic mining and metals industry capable of producing a substantial portion of our requirements and, at the same time, provide for importation of the necessary supplies of foreign mineral and metal products needed to satisfy domestic requirements and encourage expanded use

In certain cases where duties, quotas or other controls are now in effect we believe they should be modified and replaced by appropriate statutory import controls that are flexible and can automatically be increased or decreased in accordance with suitable standard or formulas. Such flexible controls would serve to meet fluctuating demands in the United States market and facilitate the importation of raw materials in the form that would help the processing segment of the industry maintain its proper place in the nation's economy. It would also recognize the changing availability of raw material supplies from various foreign countries. The flexible quota legislation for lead and zinc now before the Congress is an example of this kind of import control.

Import protection or control accorded to any metal or mineral can be effective only if equivalent compensatory customs treatment is established on the related fabricated and manufactured items containing such metal or mineral.

To assist United States manufacturers to maintain a competitive position in export markets, provision should be made for a credit comparable to draw-back for United States exporters of products containing imported raw materials subject to quotas.

Appropriate individual programs tailored to need should be established where the public interest requires maintenance of production for those mineral raw materials which provide only a small percentage of our domestic requirements.

The extraordinary powers to reduce duties and other import controls conferred upon the President by the Trade Expansion Act of 1962 must be exercised with restraint and with full regard for the position of the minerals industry. This admonition is based on the consistently negative recommendations of the Tariff Commission where petitions for assistance filed under provisions of the Act by employees, unions and industries adversely affected by imports have been heard. Prompt action by the Congress is required to reinstate the escape clause of the Trade Agreements Extension Act of 1951, as amended in 1955.