National Metallurgical Corp. Turns on New Furnace Marking End Of Half-Million Dollar Expansion and Construction Project Here
Turning on the electricity.

Old furnace glows like this.
Aerial view shows newly-enlarged National Metallurgical Co. plant. At upper right is new machine shop. Moving to the left, one sees the old building, which now houses two large furnaces. Adjoining to the left is a new mixing and storage building. Piles of quartz, raw material for silicon production, may be seen.

This week marked the climax of more than a year of actual construction and more than two years of planning for a half million dollar enlargement of the National Metallurgical company's Springfield silicon plant.

A large new 3,000-KW furnace was turned on Tuesday and today is still being heated up preparatory to receiving its first "charge" of a mixture of quartz, coke and hog fuel from which comes silicon. The 24-inch-thick refractories around the furnace must be brought slowly to the sizzling temperature required for the process, hence the slow heating period. Vinton Platte, vice-president and manager of the company, estimated it would require 30,000 kilowatt hours of electricity to get the furnace hot enough to charge. It was expected the first charge would go into the furnace late today.

The improvements will more than double the output of silicon, Platte said.

The original furnace is 2,700-KW capacity with a 3,000-KWA transformer. The new 3,000-KW furnace has a 4,000-KWA transformer. The new furnace has Whiting hydroarc regulator, one of two furnaces in the United States using such a system (the other is in a General Electric plant at Schenectady, N.Y.), regulated by current take-off from bus bars. The new mixer system was designed by Alvin Nelson, secretary-treasurer and assistant manager. Each ingredient is weighed, mixed and conveyed to storage, ready for the furnace crews.

The silicon will go, as does the present output, to National Metallurgical's three parent companies a Long Beach, Calif., Cleveland, Ohio, and Chicago, Ill.

Twelve people have been added to the permanent payroll.

In the accompanying pictures, the new furnace is shown at top right, nearly reaching from foundation to ceiling of a building 40 feet high. At top left is the mixer plant, 29 feet high. Platte turned on the first electricity, with Nelson watching. The glow of the old furnace, to be duplicated by the new one when it is charged and producing silicon, is blinding.
Springfield Plant Sold

Apex Smelting Co., which operates National Metallurgical Corp. of Springfield, Ore., has been purchased by Aluminium Ltd., big Canadian aluminum producer, according to a joint announcement made in New York by Nathanael V. Davis, president of Aluminium Ltd., and William A. Singer, chairman of the board of Apex.

The Associated Press said that the purchase was made for approximately 340,000 shares of Aluminium stock. The stock was quoted Monday at 35 on the New York Stock Exchange which would make the purchase price in the neighborhood of 11.9 million dollars.

Stock Sharing Set

The transfer, the news service said, contemplates distribution of 1.6 shares of Aluminium for each share of Apex.

Aluminium Ltd. has headquarters in Montreal and is known as builder of the famed Kitimat project in British Columbia. It is one of the major suppliers of primary aluminum ingot to American fabricating companies.

Apex, a producer of aluminum foundry alloys has plants in Chicago, Cleveland and Los Angeles. The National Metallurgical plant at Springfield is a producer of silicon.
<table>
<thead>
<tr>
<th><strong>PLANT</strong></th>
<th>NATIONAL METALLURGICAL CORPORATION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LOCATION</strong></td>
<td>Springfield, Oregon</td>
</tr>
<tr>
<td><strong>PERSONNEL</strong></td>
<td>Approx. 30 employees</td>
</tr>
<tr>
<td><strong>PRODUCT</strong></td>
<td>Silicon (98.8%)</td>
</tr>
<tr>
<td><strong>PROCESS</strong></td>
<td>Electro-thermal reduction of quartz</td>
</tr>
</tbody>
</table>
| **USES** | a) Making aluminum die cast alloys  
            b) De-oxidizer in steel  
            c) Transistors (after ultra-purification)  
            d) Waxes, oils, resins, silicones |
NEXT JUNE

NEW FURNACE 1) EXISTING

How big? 16' DIA.

SILICON

Cost? $500,000

No of men is more

New product

Rain falls from Reno-Sparks

Wood 11/02

Expansion

Contract

Firm bought from Steiger

Dunham Dow Co.
<table>
<thead>
<tr>
<th>Use</th>
<th>Product</th>
<th>Silicon</th>
<th>Quartz</th>
</tr>
</thead>
</table>

| Consumer | National Metallurgical Corp. Springfield, |
| Consumption | Pre-war | Present | Next 12 Mo. |

| Price paid FOB plant | $8.50/ton plant (June 1960) |

| Present source of supply | Crystal Peak near Reno, Northern Calif. |

| Specifications Required or Desired | |

| Maximum price | |

<table>
<thead>
<tr>
<th>Delivery schedule</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Alumina</td>
<td>.05%</td>
</tr>
<tr>
<td>Iron</td>
<td>.12%</td>
</tr>
<tr>
<td>CaO</td>
<td>tr.</td>
</tr>
<tr>
<td>MgO</td>
<td>tr.</td>
</tr>
<tr>
<td>Mn</td>
<td>.05 max.</td>
</tr>
</tbody>
</table>

**SiO₂** 99.6% min

| Miscellaneous | |

Form SOS-2
JUNE 17, 1960.  AIME

NATIONAL METALLURGICAL COMPANY, Springfield, Oregon

Subsidiary of Apex Smelting and Refining, Aluminum Alloy melters.

Open top electric furnace is charged as follows:

1. Crystal Peak quartz, shipped in from Northern California, near Reno, 500 pounds. 99.6% SiO2. So pure that it often contains large quartz crystals.

2. Wood chips 850 pounds.

3. Petroleum coke, 150 pounds.

The furnace revolves slowly around the carbons to prevent cratering.

About 13,500 tons of quartz is kept on hand at the present.

Impurities in the quartz include, .05 Alumina, .12 iron, Ca oxide trace, Mg oxide trace, Mn .05 Max.

One of the two furnaces is down now so the staff is reduced from 34 to 21 employees. The second furnace should be overhauled and back in operation late in the summer.

The final product, SILICON is 98.5% pure. Most of the impurities come from the wood ash from the chips.

A new conveyor belt system and mixing plant has just been installed and should improve mixing and speed up operations.

Product has been sold entirely to APEX SMELTING, but now about half is being peddled on the open market. Tons per month ???

tcm

\[
\begin{align*}
\text{Labor:} & \quad 34 \times 20 = 680 \text{ day} \\
2800 \text{ kw} @ .4d & = 240
\end{align*}
\]

\[
\begin{align*}
S_1 & \quad 0.2 \quad 60 \\
S_1 & = 28 \quad = 47.2\% \\
S_1 & \quad 98\%: \quad 2880 \text{ ton} \\
250 \text{ t/mo} & \quad S_1 \quad ? \\
2800 \text{ kw} \times 24 \times .4 & = 
\end{align*}
\]
NAT. METALLURGICAL

6,750 Tons Qtr/yr = 3,100 Tons Silicon

3,100 x 90% = 2,800 x $380/ton = $1,060,000 yr

EST. COSTS

MANAGEMENT: $15,000
LABOR: 34 men x 20/day x 250 days = $170,000
POWER: 5,800 kw @ .004 x 24 x 365 days = $194,640
QUARTZ: 6,750 tons x $8.50/ton = $57,375
WOOD CHIPS: 11,500 tons x $10.00/ton = $115,000
PET COKE: 2,000 tons x $20.00/est = $40,000

INTEREST & AMORTIZATION (15% YRS) = $86,600

TAXES - INSURANCE ETC

COUNTRY TAXES: $10,000
STATE CORP. TAX: $5,000
FED INCOME TAX: $157,800
INSURANCE: $10,000

REPAIRS & MAINT (ESTIMATED) = $20,000
DEPRECIATION: (10 YEARS) = $100,000

TOTAL COSTS = $980,475

TOTAL INCOME $1,060,000 LESS $980,475 = $79,525 = 7.5% PROFIT

x HOLMAN FUEL QUOTED (6-30-60) BARK: $2.00/ton
BE: $1.75
REGULAR FIRE CHIPS: $9.00/ton
N.O.S. FUEL 1.50/ton
1. What taxes do corporations pay?

2. What is the tax rate.

3. Is there a sliding scale based on amount of profit or is the tax tied to a profit-investment ratio?

4. Is it possible to get federal taxes collected from Oregon mining and metallurgical firms by categories?
The annual round-up of information on Oregon's mineral and metallurgical industry will appear in the January issue of The Ore.-Bin. A complimentary copy will be mailed to you immediately it is printed.

Before we go to press, however, we need some first-hand information on your activities in 1958. News about improvements in your operation, changes in ownership, new markets or products is particularly welcome. If you wish you can write the information on the bottom of this sheet.

A stamped self-addressed envelope is enclosed. Since we go to press about January 15 we would appreciate hearing from you promptly.

Sincerely yours,

Ralph S. Mason
Mining Engineer

RSM:1k
Encl.
# U.S. CORPORATION INCOME TAX RETURN — 1959

**FORM 1120**

**U.S. Treasury Department**

**Internal Revenue Service**

**1. Gross Receipts**

2. Less: Returns and allowances

3. Gross Profit

4. Dividends (Schedule C)

5. Interest on obligations of the United States, etc. issued:
   (a) Prior to 3-1-41 — (1) U.S. savings and Treasury bonds owned in excess of the principal amount of $3,000; and (2) obligations of a U.S. instrumentality.
   (b) On or after 3-1-41, by the U.S. or any agency or any instrumentality thereof.

6. Other interest

7. (a) Rents
    (b) Royalties

8. Net gains (losses) (from separate Schedule D)

9. Other income (Attach schedule)

10. TOTAL income, lines 3 to 9, inclusive

11. Compensation of officers (Schedule E)

12. Salaries and wages (not deducted elsewhere)

13. Repairs (Do not include cost of improvements or capital expenditures)

14. (a) Bad debts (Sch. F)
    (b) Rents

15. (a) Taxes (Sch. B)
    (b) Interest

16. Contributions or gifts paid (Attach schedule)

17. Losses by fire, storm, shipwreck, or other casualty, or theft (Attach sch.)

18. (a) Amortization (Attach sch.)
    (b) Depletion

19. Depreciation (Schedule G)

20. Advertising

21. Amounts contributed under:
   (a) Pension, profit-sharing, stock bonus, annuity plans (Attach sch.)
   (b) Other employee benefit plans (Attach sch.)

22. Other deductions (Attach schedule)

23. TOTAL deductions in lines 11 to 22, inclusive

24. Taxable income before net operating loss deduction and special deductions (line 10 less line 23)

25. Less: Net operating loss deduction

26. Taxable income before special deductions

27. Special deductions (Schedule I)

28. Line 26 less line 27

29. TOTAL income tax (from line 9, Tax Computation Schedule, page 3)

30. Credits for amounts paid on 1959 income tax:
   (a) Tax paid with application for extension of time in which to file
   (b) Payments and credits on 1959 Declaration of Estimated Tax

31. If tax (line 29) is larger than payments (line 30), the balance is TAX DUE. Enter balance here

32. If payments (line 30) are larger than tax (line 29) Enter the OVERPAYMENT here

33. Enter amount of line 32 you want: Credit on 1960 estimated tax

**SIGNATURE AND VERIFICATION**

I declare under the penalties of perjury that this return (including any accompanying schedules and statements) has been examined by me and to the best of my knowledge and belief is a true, correct, and complete return. If the return is prepared by a person other than the taxpayer, his declaration is based on all the information relating to the matters required to be reported in the return of which he has knowledge.

**CORPORATE SEAL**

(Date) (Signature of officer) (Address)

(Date) (Individual or firm signature) (Title)
### Schedule H—Summary of Amortization and Depreciation Schedules

<table>
<thead>
<tr>
<th>Part A—Depreciation</th>
<th>Part B—Amortization</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Straight line method</td>
<td>8. Emergency facilities</td>
</tr>
<tr>
<td>2. Declining balance method</td>
<td>9. Grain storage facilities</td>
</tr>
<tr>
<td>3. Sum of the years-digits method</td>
<td>10. Research or experimental expenditures</td>
</tr>
<tr>
<td>4. Based on units of production</td>
<td>11. Exploration and development expenditures</td>
</tr>
<tr>
<td>5. Add'l. 1st year (Sec. 179)</td>
<td>12. Organizational expenditures</td>
</tr>
<tr>
<td>6. Other methods</td>
<td>13. Trademark and trade name expenditures</td>
</tr>
<tr>
<td>7. Total depreciation claimed</td>
<td>14. Total amortization claimed</td>
</tr>
</tbody>
</table>

### Schedule I—Special Deductions

1. Deduction for partially tax-exempt interest (See Instruction 5)
2. Dividends-received deductions:
   (a) 85 percent of column 2, Schedule C
   (b) 62.115 percent of column 3, Schedule C
   (c) 95 percent of dividends received from certain foreign corporations.
3. Total dividends-received deductions (sum of lines 2 (a), (b), and (c) but not to exceed 95 percent of the excess of line 24, page 1 over the sum of lines 1 and 5). (See Instructions in case of net operating loss or if the corporation is a small business investment company.)
4. Deduction for dividends paid on certain preferred stock of public utilities (See Instructions in case of net operating loss)
5. Deduction for Western Hemisphere trade corporations (See Instructions in case of net operating loss)
6. Total special deductions (enter here and on line 27, page 1)

### Tax Computation for Calendar Year 1959 and Taxable Years Ending On or Before June 30, 1960

For other taxable years attach Schedule 1120 FY (See tax computation instructions)

1. (a) Line 26, page 1
2. If amount of line 1 is:
   (a) Not over $25,000—Enter 30 percent of line 1 (32 percent if a consolidated return)
   (b) Over $25,000—
      Enter 52 percent of line 1 (54 percent if a consolidated return)
      Subtract $5,500, and enter difference.
3. Adjustment for partially tax-exempt interest. Enter 30 percent of line 1 (b), but not in excess of 30 percent of line 1
4. Normal tax and surtax (line 2 less line 3)
5. Income tax (line 4, or line 20 of separate Schedule D)
6. Credit allowed a domestic corporation for income taxes paid to a foreign country or United States possession (Submit Form 1118)
7. Balance of income tax (line 5 less line 6)
8. Tax under section 541 of the Internal Revenue Code (from Schedule 1120 PH)
9. Total income tax (line 7 plus line 8). Enter here and on line 29, page 1

### Additional Information Required

G. Employer Identification No.
H. Date incorporated
I. Did the corporation at any time during the taxable year own directly or indirectly 50 percent or more of the voting stock of a domestic corporation? [ ] Yes [ ] No Did any corporation, individual, partnership, trust, or association at any time during taxable year own directly or indirectly 50 percent or more of the corporation’s voting stock? [ ] Yes [ ] No If either answer is “Yes,” attach separate schedule showing:
   (1) name and address;
   (2) percentage of stock owned;
   (3) date stock was acquired; and
   (4) the District Director’s office in which the income tax return of such corporation, individual, partnership, trust, or association for the last taxable year was filed.
J. Did the corporation make a return of information on Forms 1096 and 1099 for the calendar year 1959 in connection with:
   Taxable dividends. [ ] Yes [ ] No
   Other payments. [ ] Yes [ ] No
   (See Instruction G-(1))
K. Did the corporation, during the taxable year, have any contracts or subcontracts subject to the Renegotiation Act of 1951? [ ] Yes [ ] No

If answer is “Yes,” state the approximate aggregate gross dollar amount billed during the taxable year under all such contracts and/or subcontracts.

L. Did the corporation at any time during the taxable year own directly or indirectly any stock of a foreign corporation? [ ] Yes [ ] No

If answer is “Yes,” attach statement as required by Inst. K.
M. Enter amount of income (or deficit) from:
   (a) line 32, page 3, Form 1120, 1956
   (b) line 32, page 3, Form 1120, 1957
   (c) line 32, page 3, Form 1120, 1958

N. If corporation is a cooperative association, check whether:
   (1) [ ] farmers’ marketing or a farmers’ purchasing cooperative association,
   (2) [ ] consumers’ cooperative association, or
   (3) [ ] other cooperative association.
O. Business group code No. and principal business activity (see Page 8, instructions)