Comrad Labor team has been awarded to the brick press-
ing team headed by S. S. Marchenko and also to the team
headed by P. K. Damsenko, an excavator operator, which
fulfills his quota by 110-115%.

First to gain the title of Comrad Labor shock workers
was electric locomotive engineer N. P. Kharchenko who has
not only learned to drive electric locomotives, but also to
repair the basic parts of them.

The firers team at the Belokamensk Chamotte Plant,
headed by P. N. Rudchenko, which has gained the title of
Comrad Labor team, has been the initiator of competition
for an increase in the rate of turnover of kilns. The ex-
perience of the team has been put to use by other firers.

At the Velkiy-Anadol Chamotte Plant the title of Commu-
nist Labor team has been awarded to the pressing team
headed by P. A. Kulik, who completed his norm by 115%
without any spoilage, the batchers team headed by S. I.
Tresilov, which has fulfilled its norm by 121%.

At this plant the title of Comrad Labor shift has been
awarded to the transport section shift headed by Comman
V. V. Kryuchkov.

At the Maydan-Bilsky Chamotte Plant the title of Commu-
nist Labor team has been awarded to the firer's team led by
A. F. Metelskii.

At the Shchechka Chamotte Plant the team headed by
press operator Ye. N. Borisova carries out exemplary
work and her team was the first at the plant to gain the
title of Comrad Labor team. Team-leader Borisova has learned three trades while the other members of the
team have mastered two.

At the Nikitovka Dolomite Combine the team of rotary
kiln firers headed by Communist V. I. Titkii has gained
a well-deserved reputation for labor; the team has con-
siderably overfulfilled its obligations.

PRODUCTION

TECHNOLOGY OF LIGHTWEIGHT BRICK

V. D. Tsigler and B. Ye. Pindrik
(Ukrainian Scientific Research Institute of Refractories)

The technology of lightweight forsterite parts using
magnesium silicates with ferrous compositions and prop-
erties has been developed over a number of years (1).

The mixture for forsterite lightweight parts used to be
obtained by mixing asbestos waste (fiber length 0.8 mm) with
crude magnesite in a rolling mill in the proportion of 7:1,
and wetting to 8 - 10%.

The green material was pressed in hydraulic presses
at 700 - 800 kg/cm², and fired at 1300° after drying. On
account of the high degree of shrinkage, which often reached
11-12%, it was necessary to polish the parts.

In Britain they use the plastic method of making forsterite
lightweight parts with fired serpentine and magnesium ob-
tained from sea water with the addition of wood shavings
(2). In the Polish People's Republic these parts used to be
made by the foam method from magnesite, fireclay and
lime. The initial materials were ground fine enough to
pass through a 0.2 mm mesh, cast in metal molds, dried
and fired at 1450° for three hours, after which they were
polished (3). The properties of forsterite foam light-
weight are compared with other types of lightweight in
Table 1.

At the Yansky Dolomite Combine the title of Comrad Labor
shift has been awarded to the shift headed by foreman
N. I. Sidorov. In 1960 the shift completed its program by
103.5% and increased the output of first-grade production.

The chamotte-firing shop of the Suvorov Mine Administra-
tion has been given the great honor of the title of Comrad Labor
shop. The staff of the shop have honorably carried out the extra
obligations that they undertook, producing 3,800 tons of chamotte over and above the plan, reducing the cost of
production by 3.1% and increasing labor productivity by
6.1% over and above what was planned. At the Chelyabinsk
Mine Administration the shift from sector No. 3 engaged in
mining refractory clay has joined in the competition for
Comrad Labor at the initiative of excavator operator
P. I. Kul'byakin and foreman M. A. Nesmeyanov. The shift
has achieved high output figures in 1960 and still greater ones
in 1961. The shift productivity has been increased from 400
tons to 452 tons, or by 13%. All members of the shift are
improving their qualifications, are untiringly seeking new
ways of improving labor productivity and are taking an active
part in social life. The shift has been awarded the honorable
title of Comrad Labor shift.

The movement of Comrad Labor collectives and shock
workers embodies all the very best things which have been
developed over the many years of practice of socialist com-
petition and represents a higher phase of development. It
is a great force.

We must ensure the further expansion of the movement
for Comrad Labor, for completion of the seven-year
program ahead of schedule and for technical progress in
our industry.

Let us meet the forthcoming XXII Congress of the Com-
munist Party of the Soviet Union with new labor victories.

A description of the raw material used is given in Tables 2 and 3.
Properties of lightweight forsterite refractories.

<table>
<thead>
<tr>
<th>Method of production</th>
<th>Content, %</th>
<th>Additional shrinkage at 1650°C, %</th>
<th>Spalling resistance, air cooling heating cycles</th>
<th>Porosity, %</th>
<th>Bulk density, g/cm³</th>
<th>Compressive strength, kg/cm²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semidry</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>[1]#</td>
<td></td>
<td>Not determined</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plastic</td>
<td></td>
<td>Not determined</td>
<td>1,3</td>
<td>52,3</td>
<td>1,45</td>
<td>14-35</td>
</tr>
<tr>
<td>[2]**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foam method [3]</td>
<td>24,0</td>
<td>63,97</td>
<td></td>
<td>61,8</td>
<td>1,14</td>
<td>56</td>
</tr>
</tbody>
</table>

*Refractoriness under load of 1 kg/cm² 1340-1380°C. Recommended temperature for use not above 1550°C.
**Failure point under load of 0.7 kg/cm² 1690°C; in 6 to 22 minutes.

NOTE: Comma represents decimal point.

Chemical composition and refractoriness of raw material

<table>
<thead>
<tr>
<th>Material</th>
<th>Chemical composition, %</th>
<th>Refractoriness, °C</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SiO₂</td>
<td>Al₂O₃</td>
</tr>
<tr>
<td>Uktus dunite</td>
<td>34.8</td>
<td>0.98</td>
</tr>
<tr>
<td>Fired magnesite</td>
<td>3.70</td>
<td>1.34</td>
</tr>
<tr>
<td>Crude magnesite</td>
<td>0.92</td>
<td>0.34</td>
</tr>
<tr>
<td>Ovruch quartzite</td>
<td>96.90</td>
<td>1.44</td>
</tr>
<tr>
<td>Oil coke ash*</td>
<td>37.61</td>
<td>17.72</td>
</tr>
<tr>
<td>Ash from coke dust screenings from gas generation station at Krasnogorovka plant</td>
<td>43.89</td>
<td>21.02</td>
</tr>
</tbody>
</table>

*Ash content of oil coke 3%, coke dust screenings 12%.
NOTE: Comma represents decimal point.

The mixtures were mixed in laboratory rolling mills and moistened with sulfite-cellulose liquor (1% per dry residue) with the addition of water. Cube-shaped specimens with a 50 mm edge and prisms 110 x 30 x 30 mm were pressed at 250 kg/cm², dried at 110-140°C, and fired in a mazut-fired kiln at 1500°C.

The effect of the combustible additive on the properties of the lightweight was studied in a series of charges with the addition of 10, 20, 30 or 40% oil coke with a 4:1 ratio of crude dunite to fired magnesite. The dunite and oil coke used were finer than 1 mm, while the magnesite was less than 0.088 mm. The variation in the properties of the