The report shown in this file states that the examined stone type is suitable for sauna heater stone use. The study was conducted by Geological Survey of Finland.

Studied rock type is used in following Harvia products manufactured by Sauna-Eurox OY that is part of Harvia Group:

- AC3000 olivine diabase sauna heater stone (5-10 cm diameter)
- R-990 olivine diabase sauna heater stone / blanco box (5-10 cm diameter)
- AC3010 olivine diabase sauna heater stone / blanco box (5-10 cm diameter)
- AC3020 olivine diabase sauna heater stone (10-15 cm diameter)
- R-993 olivine diabase sauna heater stone (10-15 cm diameter)
- AC3050 Elite Pro Heavy Duty sauna heater stone (5-10 cm diameter)
- AC3055 Elite Pro Heavy Duty sauna heater stone (10-15 cm diameter)
- R-991 Rounded olivine diabase sauna heater stone (5-10 cm diameter)
- R-995 Rounded olivine diabase sauna heater stone (10-15 cm diameter)

Telephone +358 20 7 464 000, fax +358 20 7 464090

GEOLOGIAN TUTKIMUSKESKUS
Etela-Suomen yksikko
Espoo

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A study of sauna stove stones, ODLA

Hanno Kujala

GEOLOGIAN TUTKIMUSKESKUS • GEOLOGISKA FORSKNINGSCENTRALEN • GEOLOGICAL SURVEY OF FINLAND

PL/ PB/ P.O. Box 96
Fl-02151 Espoo, Finland
Tel. +358 20 550 11
Fax +358 20 550 12

PL/ PB/ P.O. Box 1237
FI-70211 Kuopio, Finland
Tel. +358 20 550 11
Fax +35820 550 13

PL/ PB/ P.O. Box 97
FI-67101 Kokkola, Finland
Tel. +358 20 550 11
Fax +358 20 550 5209

PL/ PB/ P.O. Box 77
FI-96101 Rovaniemi, Finland
Tel. +358 20 550 11
Fax +358 20 550 14

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Authors Hannu Kujala	Type of report Commissioned by Sauna-Eurox Oy
Title of report A study of sauna stove stones, ODLÄ	
Abstract A study of polished thin section was carried out. On the basis of the mineral composition and ophitic texture the rock type is an olivine diabase. The ophitic texture is very clear. Olivine, pyroxene and opaque grains fill the interstices between prismatic plagioclase crystals. The opaque minerals are mainly oxides (ilmenite and magnetite). Very small suphide grains (pyrrhotite and chalcopyrite) occurs occasionally. A rock sample from ODLÄ was examined by Työterveyslaitos (Finnish Institute of Occupational Health) for possible asbestos minerals. The sample did not contain any asbestiform minerals. The conclusion of this study is that this rock type is very suitable to be used as sauna stove stones.	
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Samples and the purpose of the study

Sauna-Eurox Oy sent rock samples to the Geological Survey of Finland (GTK) from the ODLA quarry in western Finland. The purpose of this study is to test the usability of the rock material as raw material for sauna stove stone production. Research methods were a microscopical study and the examination for possible asbestos minerals.

Macroscopical examination

The rock samples are medium -grained, grey, massive and homogenous. Ophitic texture is clearly visible with plagioclase occurring as 1-3 mm prismatic crystals. No veins or inclusions exist.

Microscopical examination

A study of polished thin section was carried out. The ophitic texture is very clear. Olivine, pyroxene and opaque grains fill the interstices between prismatic plagioclase crystals. Plagioclase has been slightly altered to sericite. Serpentine and chlorite occur as metamorphic minerals on the rims and cracks of olivine. The opaque minerals are mainly oxides (ilmenite and magnetite). Very small suphide grains (pyrrhotite and chalcopyrite) occurs occasionally. Biotite flakes occur mainly together with opaque minerals. Some small apatite grains were observed.

The modal composition of the rock (point counting, 500 points) is:

plagioclase	56.4 %
olivine	22.6%
pyroxene	6.8%
opaque minerals	5.6%
biotite	4.6%
sericite	3.2%
serpentine	0.8%
apatite	+
chlorite	+

On the basis of the mineral composition and ophitic texture the rock type is an olivine diabase.

Asbestos minerals

A rock sample from ODLA was examined by Tyoterveyslaitos (Finnish Institute of Occupational Health) for possible asbestos minerals. The sample did not contain any asbestiform minerals. (Report TY-03/hl/1532-2011).

Conclusions

Because of its mineral composition and ophitic texture, the rock has high density and firmness. No harmful minerals were obtained. The conclusion of this study is that this rock type is very suitable to be used as sauna stove stones.