

Lys larvikitt (Light larvikite)

Blue Pearl

Lundhs Blue

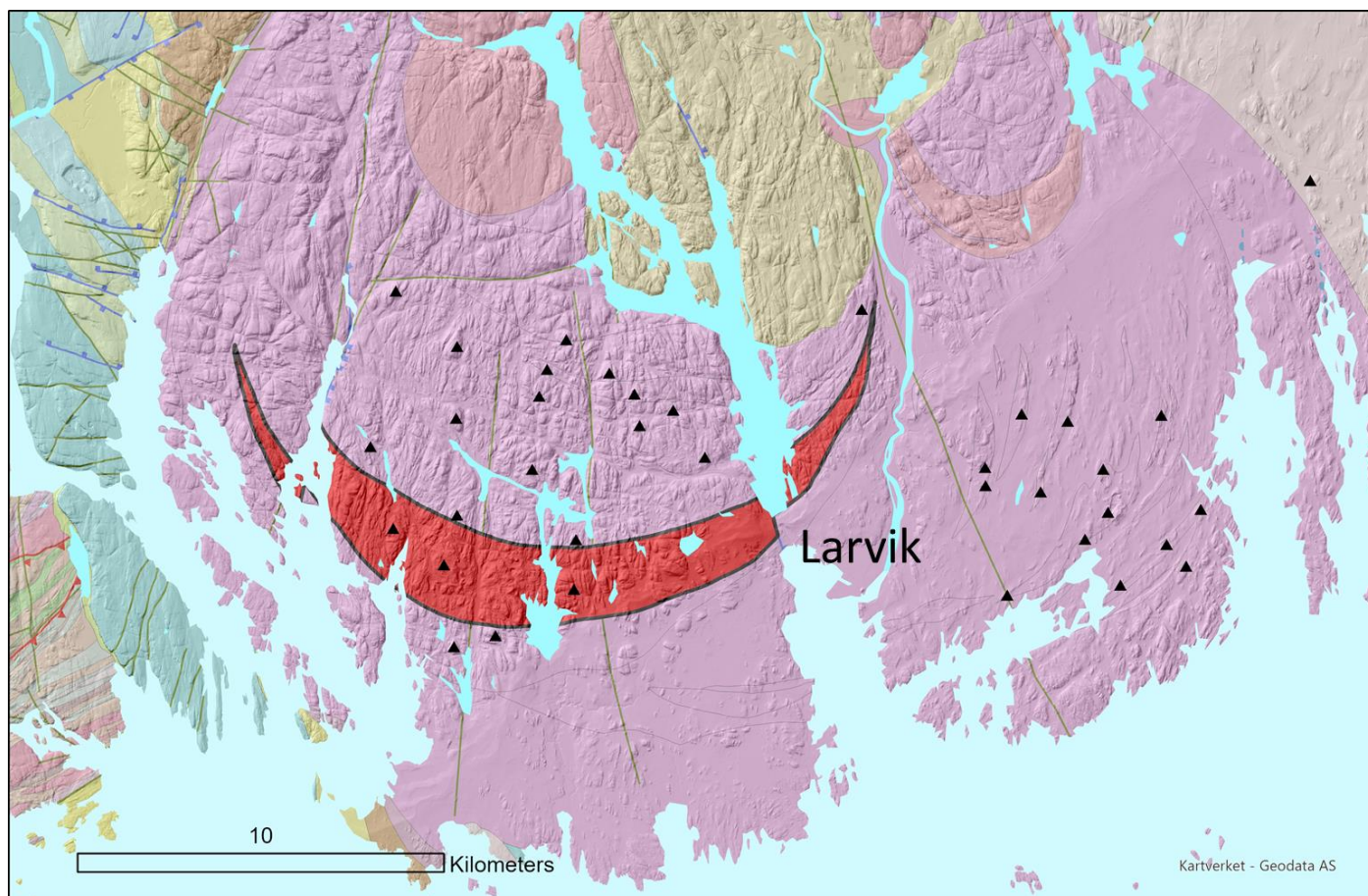


5 centimeters

Short description: Bluish-grey, coarse-grained monzonite displaying blue schillerization within ternary feldspar crystals. The image displays a polished surface.

Commodity (vocabulary)	Lithology (vocabulary)	Typical colour (code list)	Place of origin			
			Country	County / District / Province	Municipality / Community	Place/town / Village
Commercial Granite	Monzonite	Blue	Norway	Vestfold-Telemark	Larvik Porsgrunn	Tvedalen Auen

Geological setting



Geology: Light larvikite (red marking) forms a part of a rift related, monzonitic pluton of Carboniferous-Permian age, situated in SE Norway. Nearest town is Larvik, which has given the name for the group of ornamental stones extracted in the area. Red area marks the outcrop area for this type of larvikite, black triangles quarry areas.

Production: The most important quarry area is Tvedalen, where there are several companies producing the stone in numerous quarries.

Geological age: Carboniferous-Permian (298-272 million years)

Geological unit: [Larvik Plutonic Complex](#)

Application, use and heritage

Description: Larvikite has been extracted in an industrial scale since 1878, and has since been applied all over the world. It is particularly appreciated for façade cladding, indoor floors, table tops and funeral monuments. Light larvikite is the subtype mostly produced in large quantities. Larvikite is among the designated IUGS [Global Heritage Stone Resource](#).



The old Norwegian National Bank building (1907), made of light larvikite.

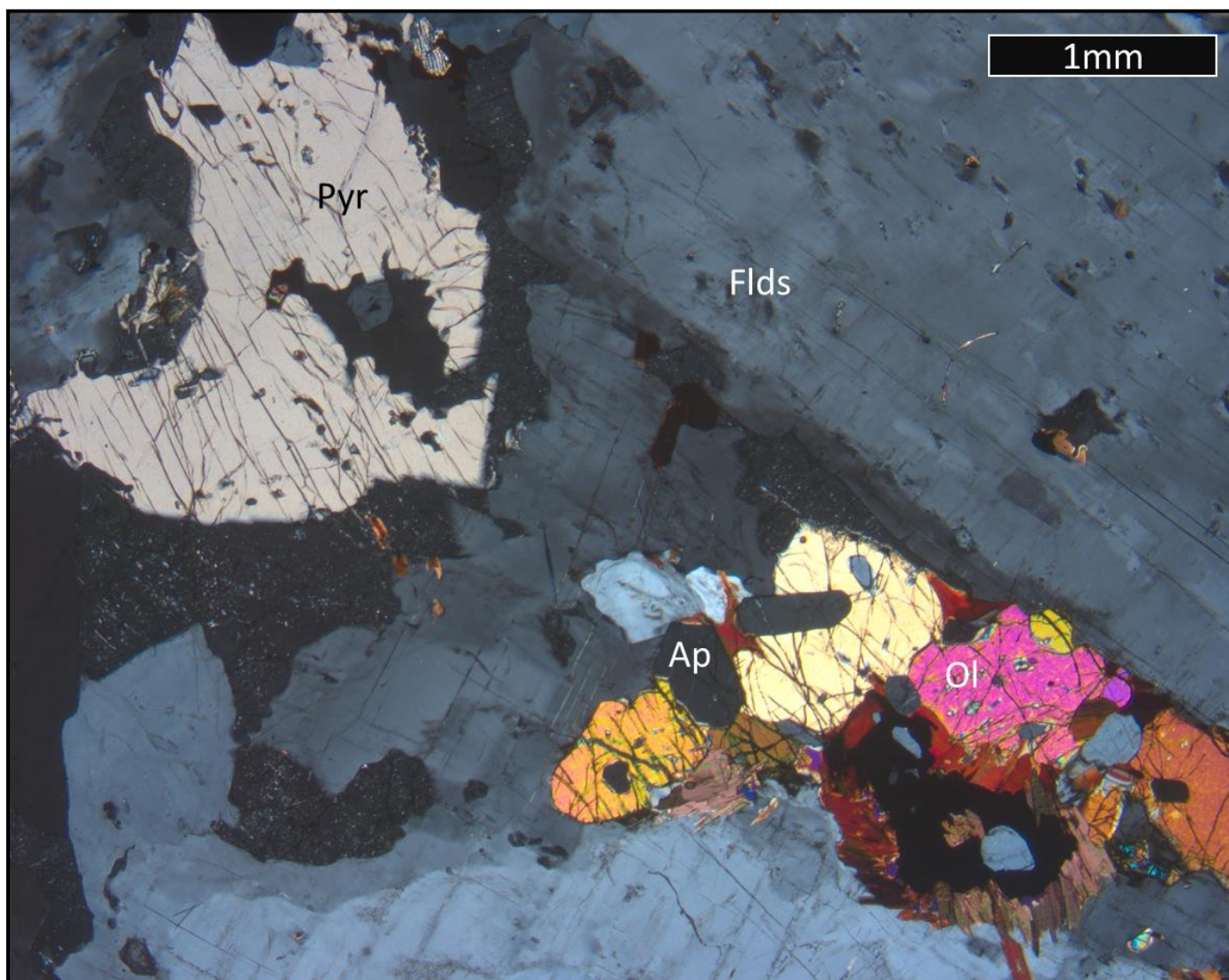


Light larvikite floor tiles and kitchen top (photo Lundhs/Morten Rakke)



Façade with different surface treatment (photo Lundhs/Morten Rakke)

Petrography



Description: Larvikite is a monzonitic rock predominantly composed of felspar (75 – 85 %), with clusters of dark minerals such as olivine, amphibole, pyroxene and biotite. Nepheline and apatite may be present in small amounts. The feldspars are ternary, i.e. showing intergrowth patterns of lamellae of different composition. The lamellae cause the blue play of colours (schillerization). Photomicrograph of thin section, crossed polarized light showing large ternary feldspar grains and smaller grains of pyroxene, olivine and apatite.

Source of information: Geological Survey of Norway

Mineral composition

If no accurate number, use MM=main minerals, SM = Subordinate minerals, AM=accessory minerals

Feldspars (%)	Pyroxene (%)	Amphiboles (%)	Olivine (%)	Biotite (%)	Nepheline (%)	Apatite (%)
78,5	5,5	3	3,5	3	2	1
Opagues (%)						
3,5						

Source of information: [Lundhs](#)

Physical properties

Apparent density (EN 1936), kg/m ³	Open porosity (EN 1936), % vol	Water absorption at atmospheric pressure (EN 13755), % wt	Uniaxial Compressive strength (EN 1926), MPa	Flexural strength under concentrated load (EN 12372), MPa
2730	0,09	0,03	251,8	14,9

Real density (EN 1936), kg/m ³	Total porosity (EN 1936), % vol	Water absorption coefficient by capillary (EN 1925) (g/m ² x s ^{0,5})	Flexural strength under constant moment (EN 13161), MPa

Frost resistance (EN 12371)				
Technological Test (Test A)				Identification Test (Test B): Number of cycles completed prior to stone failure
Flexural strength (EN 12372) after freeze-thaw cycling, MPa	Number of cycles	Uniaxial compressive strength (EN 1926) after freeze-thaw cycling, MPa	Number of cycles	
14,3	56			

Resistance to ageing by thermal shock (EN 14066)			
Change in dynamic modulus of elasticity (increase: +; decrease: -), %	Change in open porosity (increase: +; decrease: -), %	Change in ultrasound pulse velocity (increase: +; decrease: -), %	Change in flexural strength under conc. load (increase: +; decrease: -) %

Abrasion resistance (EN 14157)			Resistance to salt crystallisation (EN 12370)	Breaking load at dowel hole (EN 13364)	
Method A - Wide Wheel Abrasion Test, mm	Method B - Böhme Abrasion Test, cm ³ / 50cm ²	Method C - Amsler Abrasion Test, mm	Change in mass (increase: +; decrease: -), %	Breaking load, N	Thickness of the test specimens, mm
17,5					

Slip resistance by means of the pendulum tester (EN 14231 / CEN/TS 16165)			Rupture energy (EN 14158), Joule	Thermal Conductivity (EN 1745), W/m·K
Tested surface finish	Slip Resistance Value — SRV			
	Dry test condition	Wet test condition		
Polished	98	8		

Source of information: [Lundhs](#)

Chemical properties

Main elements

SiO ₂ (%)	Al ₂ O ₃ (%)	Fe ₂ O ₃ (%)	TiO ₂ (%)	MgO (%)	CaO (%)	Na ₂ O (%)	K ₂ O (%)	MnO (%)	P ₂ O ₅ (%)	SO ₃ (%)	LOI (%)

Trace elements

V (ppm)	Cr (ppm)	Mn (ppm)	Co (ppm)	Ni (ppm)	Cu (ppm)	Zn (ppm)	As (ppm)
Sr (ppm)	Cd (ppm)	Ba (ppm)	Pb (ppm)	Be (ppm)	Rb (ppm)	Bi (ppm)	U (ppm)
Sc (ppm)	Y (ppm)	Th (ppm)	Sb (ppm)	Ta (ppm)	Nb (ppm)	Zr (ppm)	Sn (ppm)
Ag (ppm)	B (ppm)	Mo (ppm)	W (ppm)	Ga (ppm)	Ge (ppm)	Se (ppm)	Cs (ppm)
Tl (ppm)							

REE

La (ppm)	Ce (ppm)	Pr (ppm)	Nd (ppm)	Sm (ppm)	Eu (ppm)	Gd (ppm)	Tb (ppm)
Dy (ppm)	Ho (ppm)	Er (ppm)	Tm (ppm)	Yb (ppm)	Lu (ppm)		

Methods applied and source of information:

Sources of more information

Type of information	Name of provider	URL
This data sheet	Geological Survey of Norway	http://geo.ngu.no/api/faktaark/mineralressurser/visNaturstein.php?objid=13121&lang=eng
Maplink	Geological Survey of Norway	https://geo.ngu.no/kart/common mobil/? /kart/mineralressurser mobil/ lang=eng::extent=201936.74384081876,6553578.879619948,209320.27509081876,6556942.723369948::map=9
Non-commercial directory	Natural stone online	https://www.naturalstone-online.com/index.php?id=356&user_dnsaeng_pi1%5BsteinID%5D=23
Commercial directory		
Scientific publication	Lyell Collection	https://sp.lyellcollection.org/content/407/1/21
Other publication		

Compiled by:	Geological Survey of Norway (NGU) https://www.ngu.no/	 GEOLOGICAL SURVEY OF NORWAY - NGU -
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