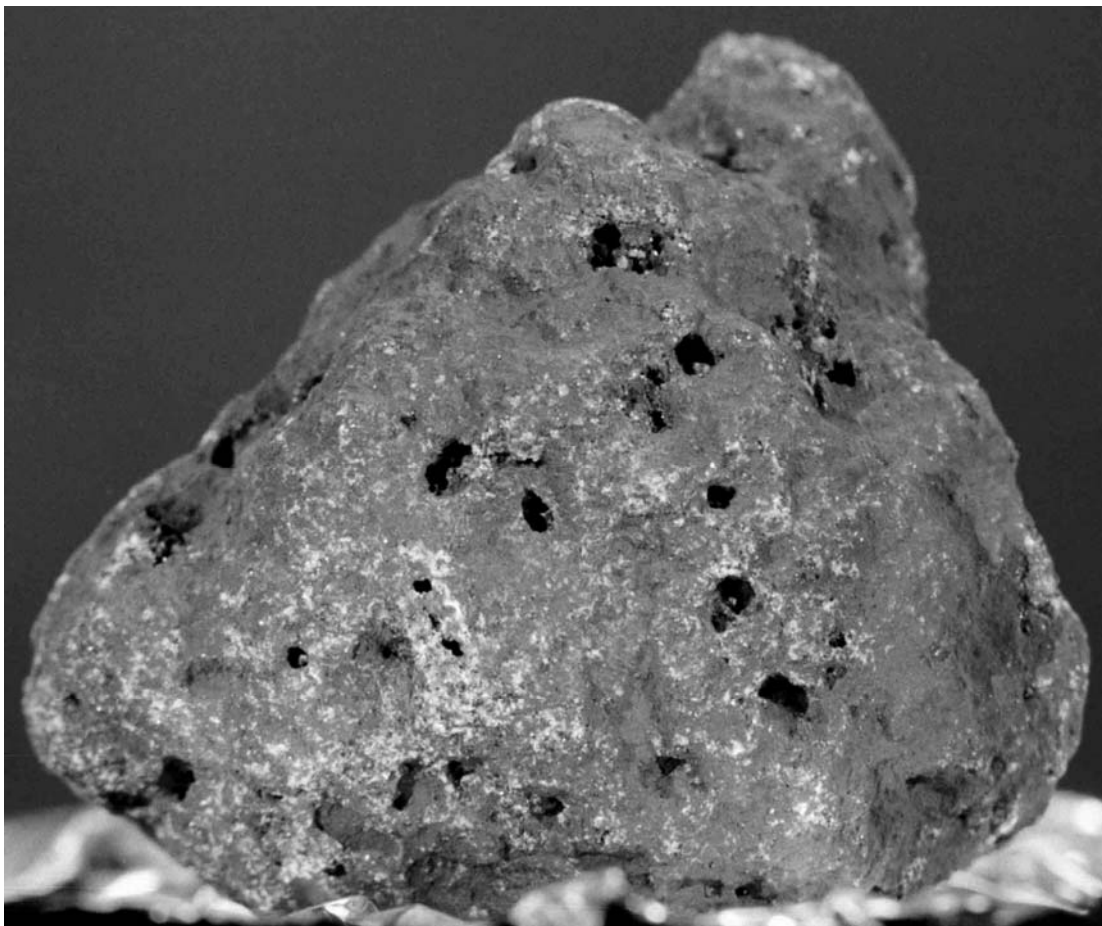


10050

Sample 10050 is an angular, medium light grey, Cristobalite basalt. This sample originally weighed 114gm and measured 5x4x3.2cm. Sample was returned in ALSRC #1003 (Bulk Sample Container).

BINOCULARDESCRIPTION BY: Twedell DATE: 1/19/76
ROCKTYPE: Cristobalite Basalt SAMPLE: 10050,0 WEIGHT: 28.53 gm
COLOR: Medium light grey DIMENSIONS:3.5 x 3.2 x 2 cm
SHAPE: Angular
COHERENCE: Intergranular - Moderately coherent
Fracturing - Few, non-penetrative
FABRIC/TEXTURE: Isotropic/Equigranular
VARIABILITY: Homogeneous
SURFACE: Rough
ZAP PITS: Absent
CAVITIES: 25% cavities throughout sample. Average size is about 1-1.5mm.

<u>COMPONENT</u>	<u>COLOR</u>	<u>%OF ROCK</u>	<u>SHAPE</u>	<u>SIZE(MM) DOM.RANGE</u>
Pyroxene	Dk.Brown to Dk. Grn.	60	Subhedral	0.1 <.1-.7
Plagioclase	White	30	Anhedral	0.1 <.1-.7
Ilmenite	Black	10	Subhedral	0.1 <.1-.7

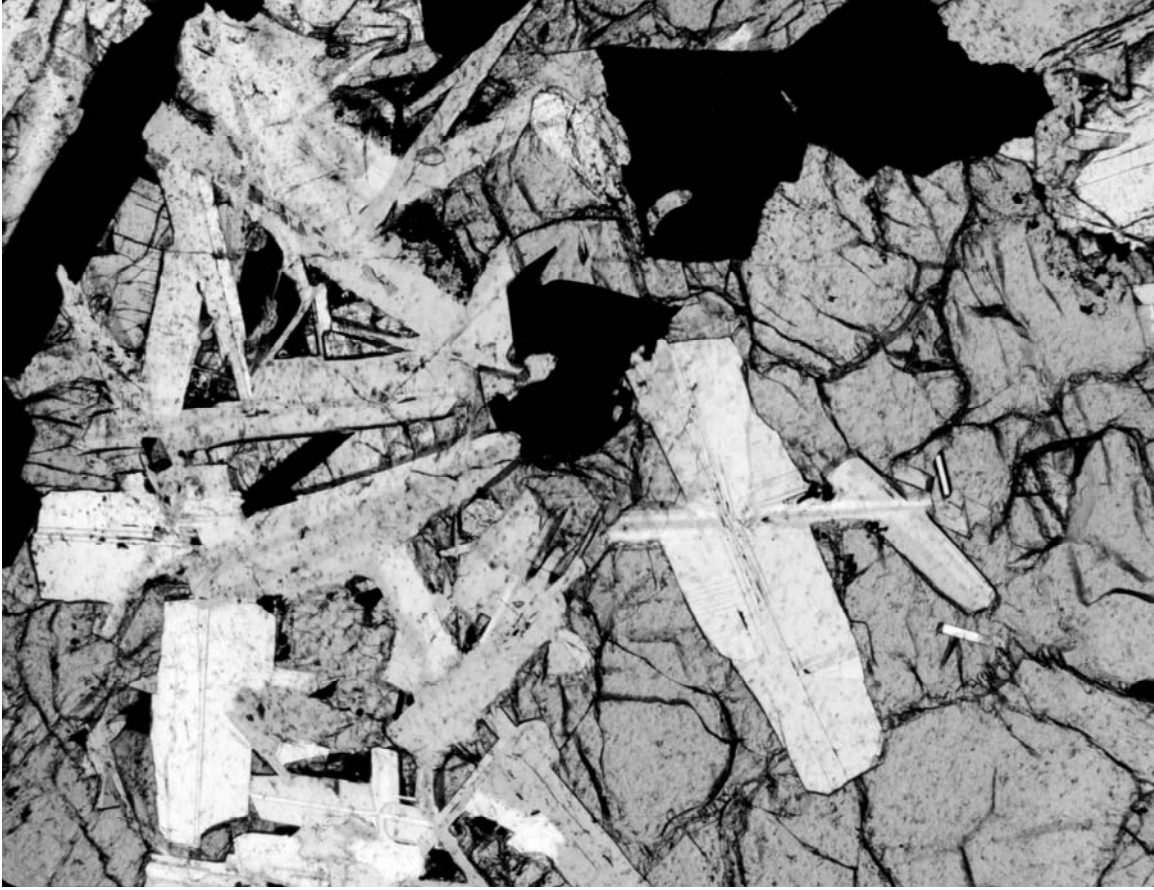


10050,0 Original PET Photo S-69-45732



0 S-76-21349

100510050,



S-76-26272

SECTION: 10050,36

Width of field 1.39mm plane light

THIN SECTIONDESCRIPTION

BY: Walton

DATE: 6/16/76

SUMMARY: Nearly equigranular subophitic basalt composed of clinopyroxene, two generations of plagioclase, ilmenite with subordinate cristobalite, troilite-iron nickel, chromium ulvospinel and mesostasis. Large anhedra crystals of pyroxene host the other phases present. Many of these crystals are polygranular while appearing as a single crystal in plane polarized light.

The plagioclase crystals are more or less grouped and scattered throughout the pyroxene host. Some small euhedral crystals of plagioclase are included in the pyroxene crystals.

The ilmenite crystals are large and highly skeletal. Many of the crystals have chromite and rutile exsolution lamellae. A few of the crystalline masses are made up of many smaller crystals giving a polygranular texture to the crystal.

<u>PHASE</u>	<u>%SECTION</u>	<u>SHAPE</u>	<u>SIZE(MM)</u>
Pyrox	55	Anhedral, irregular	0.4-1.3
Plag	28	Euhedral to anhedral	0.2-1.0
Opaq	11	Subhedral to skeletal	0.2-1.0
Cris	5	Anhedral	0.1-0.4
Meso	1	Irregular	0.05-0.4

COMMENTS:

Pyroxene - Large anhedral crystals of clinopyroxene form a nearly continuous array and host all other phases present. The crystals show sharp to distinct extinctions with moderate zoning. Small euhedral to anhedral crystals of olivine are present in several crystals. Many of the crystals are granulated while retaining the monocrystalline appearance. Almost all crystals show a pronounced fracture pattern with only a minor cleavage pattern developed. A few crystals show simple twins, but this is rare.

Plagioclase - Two generations of plagioclase occur in the rock. The first type consists of euhedral tablets which appear in the section as equant to acicular crystals. The crystals show well developed twin planes, sharp extinctions, and minor clustering. The second type of crystals represented in the rock forms interstitial masses between the pyroxene-ilmenite-plagioclase network. The crystals are larger than the first type and show poor optical characteristics. A possible third generation may be present and is represented by very small, sharp, isolated euhedral crystals completely enclosed in the pyroxene. These crystals may belong to the first generation or may represent a completely independent generation. Associated with the second generation of plagioclase crystals are small irregular masses of glass-rich mesostasis. The color is light to dark brown. Some devitrification has taken place, but no phases were determined.

Cristobalite- Randomly scattered throughout the section are anhedral crystals of cristobalite. The grains are found between adjacent pyroxene-plagioclase crystals or between two grains of pyroxene. The later case is the more common.

Opaques - The most abundant opaque in the rock is ilmenite which occurs as subhedral to skeletal crystal masses scattered throughout the rock. The lath-like crystals tend to form near the crystals of plagioclase and cristobalite. The skeletal crystals are randomly scattered in the silicate network. Some rutile and chromite ex-solutions are present. Associated with the ilmenite are crystals of troilite and troilite with iron-nickel. The masses are small and widely distributed. A few small groups of chromium ulvospinel are also in the rock. These small masses are associated with small masses of ilmenite. The crystals are very rounded and irregular in shape.

TEXTURE: .Subophitic medium-grained basalt consisting of pyroxene, two generations of plagioclase, ilmenite and cristobalite with minor other phases. Contacts are sharp and little to no interaction between phases is present.

Selected References: Frondel et al. (1970), Ross et al. (1970).

HISTORY AND PRESENT STATUS OF SAMPLES - 10/29/76

10050 was removed from ALSRC #1003 and split in the Bio-Prep Lab. A small chip was sent to PCTL for PET analysis. Remaining pristine samples were reexamined in SSPL.

PRISTINE SAMPLES: (All BP-SSPL)

0	28.53 gm	Piece. No pitting observed.
1	2.40 gm	Chip. No pits.
15	4.05 gm	Chips and fines.
16	11.64 gm	Chips and fines.
146	11.12 gm	Chips and fines split from ,0.

RETURNED SAMPLES:

11	7.06 gm	Chip. Three pitted surfaces.
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CHEMICAL ANALYSES

<u>Element</u>	<u>Number of Analyses</u>	<u>Mean</u>	<u>Units</u>	<u>Range</u>
SiO ₂	3	41.05	PCT	3.53
Al ₂ O ₃	5	10.21	PCT	2.12
TiO ₂	4	12.16	PCT	1.83
FeO	3	18.12	PCT	2.05
MnO	3	.273	PCT	.034
MgO	3	8.65	PCT	3.65
CaO	5	11.56	PCT	1.26
Na ₂ O	5	.403	PCT	.106
K ₂ O	4	.066	PCT	.030
Li	1	11.00	PPM	0
Rb	4	.723	PPM	.150
Cs	2	.027	PPM	.003
Sr	3	166.7	PPM	48.8
Ba	2	80.50	PPM	23
Sc	2	90.70	PPM	3.6
V	3	107.50	PPM	19.0
Cr ₂ O ₃	3	.333	PCT	.040
Co	3	15.93	PPM	5.40
Cu	1	15.20	PPM	0
Zn	1	1.75	PPM	0

Element	Number of Analyses	Mean	Units	Range
Y	1	104.00	PPM	0
Zr	1	520.00	PPM	0
Pd	1	.001	PPM	0
Ag	1	1.42	PPB	0
Cd	1	2.56	PPB	0
Ta	1	2.2	PPM	0
Hf	2	11.05	PPM	4.9
Ir	1	.010	PPB	0
Au	1	.030	PPB	0
La	2	7.70	PPM	1
Ce	2	35.50	PPM	3
Pr	1	6.20	PPM	0
Nd	1	36.00	PPM	0
Sm	2	13.45	PPM	3.3
Eu	2	2.08	PPM	.15
Gd	1	19.90	PPM	0
Tb	2	3.20	PPM	2.2
Dy	1	28.00	PPM	0
Ho	2	4.75	PPM	.3
Yb	3	8.90	PPM	10.2
Lu	2	1.88	PPM	.16
Th	2	1.17	PPM	1.27
U	2	.183	PPM	.054
Ga	1	4.41	PPM	0
In	1	.004	PPM	0
Tl	1	.330	PPB	0
C	1	64.00	PPM	0
Pb	1	.29	PPM	0
N	1	30.00	PPM	0
Bi	1	.160	PPB	0
O	1	40.50	PCT	0
Te	1	.011	PPM	0
Br	1	.010	PPM	0

Analysts: Ehmann & Morgan, (1970); Rose et al., (1970); Wakita et al, (1970); Ganapathy et al., (1970); Goles et al., (1970); Tera et al, (1970); Gapalon et al., (1970); Papanastassiou et al., (1970); Moore et al., (1970); Tatsumoto, (1970); Anders et al., (1970).

Age References: Armstrong and Alsmiller (1971); Eberhardt (1971b); Tatsumoto (1970).