

# 10064

Sample 10064 is an angular, dark to light grey, fine breccia. This sample originally weighed 65gm and measured 6x3x2.5cm. It was originally returned in ALSRC #1004 (Documented Sample container).

BINOCULAR DESCRIPTION BY: Twedell DATE: 12/16/75

ROCK TYPE: Fine Breccia SAMPLE:10064,6 WEIGHT: 51 gm

COLOR: Dark to light grey DIMENSIONS: 5 x 3.5 x 2.5 cm

SHAPE: Angular

COHERENCE: Intergranular - moderately coherent  
Fracturing - many penetrative

FABRIC/TEXTURE: Isotropic/Fine Breccia

VARIABILITY: Homogeneous

SURFACE: Smooth on exposed (T<sub>1</sub>) face to angular on fresh surface (B<sub>1</sub>).

ZAP PITS: Many on T<sub>1</sub>, few on S<sub>1</sub>, W<sub>1</sub>, none on others. Some pits on T<sub>1</sub> are glass lined and are up to 3mm in size.

CAVITIES: Absent

<u>COMPONENT</u>	<u>COLOR</u>	<u>% OF ROCK</u>	<u>SHAPE</u>	<u>SIZE(MM) DOM. RANGE</u>	
Matrix	Dk.Grey	90	-----	----	-----
Basalt Clast	Med.Grey	1	Subrounded to angular	3.0	1.0-8.0
Grey Clast <sub>1</sub>	Med.Grey	1	Subangular	2.0	0.5-8.0
Salt & Pepper Clast	Lt.Grey	<1	Subrounded	1.5	1.0-2.2
Black Clast	Dk.Grey	1	Subrounded	4.0	3.0-6.0
Mineral Clast <sub>2</sub> amber	White to	5	Angular to subrounded	2.0	.05-2.0

- 1) Smaller grain size than basalt clast.
- 2) Single and compound grains of pyroxene and plagioclase

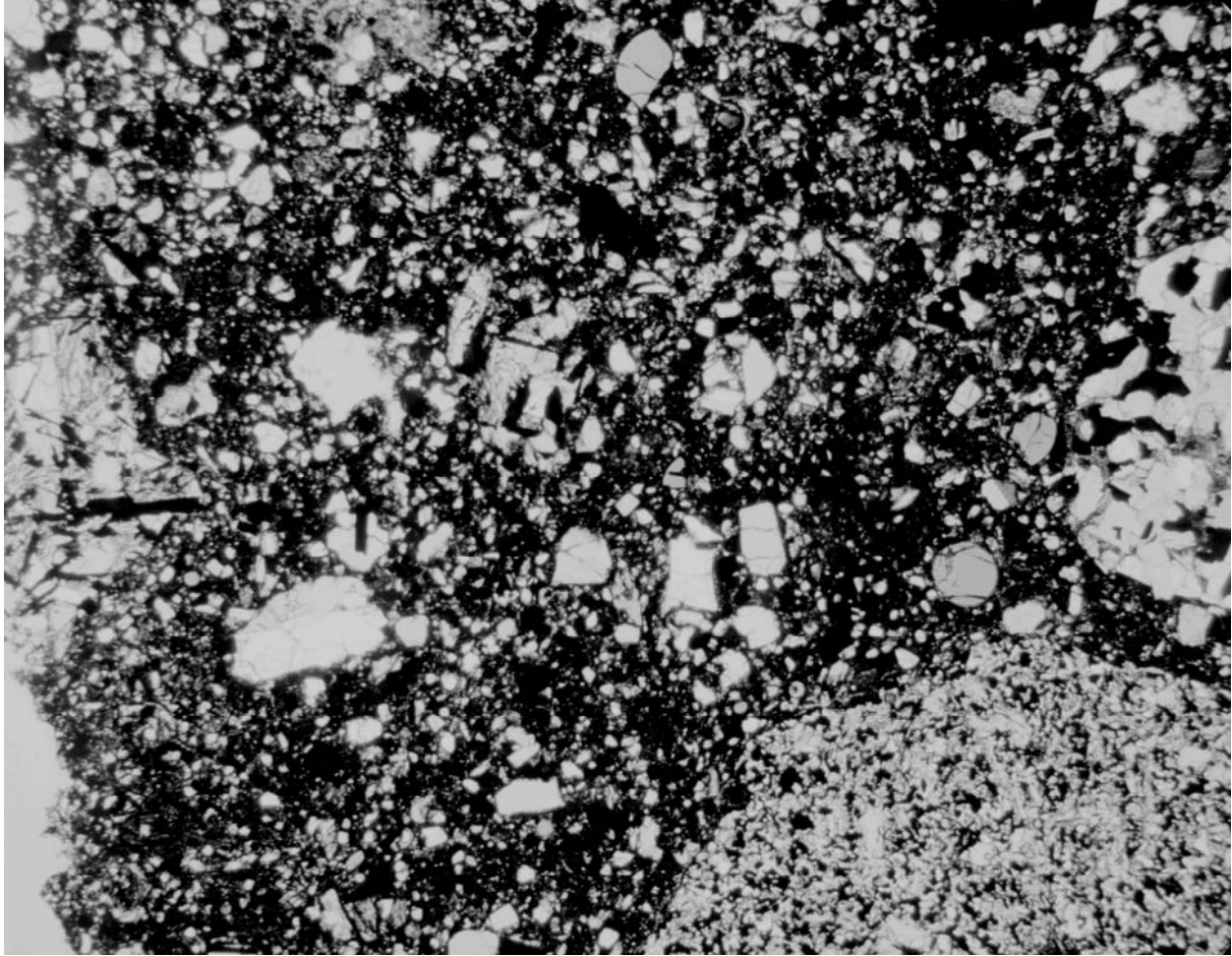
SPECIAL FEATURES: High population of glass lined pits is an interesting feature of this sample. This sample is also highly fractured, with a high % of penetrative fractures.



10064,0 Original PET Photo S-69-46621



10064,6 S-76-20400



S-76-26320

SECTION: 10064,25

Width of field 2.72 mm plane light

THIN SECTION DESCRIPTION

BY: Walton

DATE: 6/2/76

SUMMARY: Highly devitrified typical breccia with a high glass clast content. Several anorthositic clasts are present, which is unusual. Far fewer large crystal clasts occur than in the typical breccia. The rock is a recrystallized breccia with a high crystallization lithic clast content.

MATRIX 32% OF ROCK

<u>PHASE</u>	<u>% SECTION</u>	<u>SHAPE</u>	<u>SIZE (MM)</u>	<u>COMMENTS:</u>
Dark Brown	100	-----	<0.001	High glass content with many cryptocrystalline phases.

MINERAL CLASTS 29% OF ROCK

<u>PHASE</u>	<u>RELATIVE ABUNDANCE</u>	<u>SHAPE</u>	<u>SIZE (MM)</u>
Clinopyroxene <sub>1</sub>	Very abundant	Angular	0.001-0.2
Plagioclase <sub>2</sub>	Moderate	Blocky	0.05-0.2
Opaques <sub>3</sub>	Few	Tabular to skeletal	

- 1) Mostly in the 0.001-0.1 range.
- 2) Highly shocked.
- 3) Most in clasts, some shards in matrix.

LITHIC CLASTS 20% OF ROCK

<u>TYPE</u>	<u>RELATIVE ABUNDANCE</u>	<u>SHAPE</u>	<u>SIZE (MM)</u>
Small	Very abundant	Rounded	0.001-1.0
Large <sub>4</sub>	Four present	Rounded to angular	>1.0

- 4)
  - a. Fine-grained subophitic basalt composed of clinopyroxene, plagioclase, and ilmenite.
  - b. Very fine-grained basalt, nearly opaque, with abundant dendritic crystals. Only pyroxene, plagioclase, and ilmenite could be confirmed, but other phases may be present and are just too small for resolution.
  - c. Medium-grained subophitic basalt composed of clinopyroxene, plagioclase and ilmenite.
  - d. Composed of a glass-rich matrix hosting crystalline clasts, mineral fragments and glass shards. Typical fine-grained fragment, similar to the host rock.

GLASS CLAST 19% OF ROCK

<u>TYPE</u>	<u>RELATIVE ABUNDANCE</u>	<u>SHAPE</u>	<u>SIZE(MM)</u>
Yellow-Orange <sub>5</sub>	Very abundant	Spherical to irregular	0.001-1.8
Greenish Yellow/Brown <sub>6</sub>	Few	Irregular	0.2-0.5
White to Colorless	Moderate	Irregular	0.2-0.6

- 5) Majority are spheres, many with bubbles.
- 6) Two pieces.
- 7) Many bubbles.

HISTORY AND PRESENT STATUS OF SAMPLES - 7/13/76

10064 was removed from the Documented Sample container (ALSRC #1004) and split in the Vac Lab. A 1.45 gm chip was sent to PCTL for PET analysis. Remaining pristine samples were re-examined and split in SSPL.

PRISTINE SAMPLES: (All VAC-SSPL)

6	37.01 gm	Pitted surface piece. Parts of two surfaces are fresh.
18	8.31 gm	Pitted surface piece. Three fresh surfaces present.
19	2.01 gm	Chip. Two surfaces are pitted.
22	0.26 gm	Chips. Three fresh and one pitted chip.
23	0.80 gm	Chips and fines.

NO RETURNED SAMPLES

CHEMICAL ANALYSES

Element	Number of Analyses	Mean	Units	Range
SiO <sub>2</sub>	1	41.50	PCT	0
Al <sub>2</sub> O <sub>3</sub>	2	11.06	PCT	.19
TiO <sub>2</sub>	1	9.34	PCT	0
FeO	1	16.47	PCT	0
MnO	1	.207	PCT	0
MgO	1	7.13	PCT	0
CaO	1	11.96	PCT	0
Na <sub>2</sub> O	1	.492	PCT	0
Ba	1	290.0	PCT	0
Sc	1	60.5	PCT	0
V	1	73.0	PPM	0
Co	1	29.0	PPM	0
Zr	1	520.00	PPM	0
Ta	1	1.70	PPM	0
Hf	1	13.9	PPM	0
La	1	19.6	PPM	0
Ce	1	59.0	PPM	0
Sm	1	15.50	PPM	0
Eu	1	1.77	PPM	0
Tb	1	3.70	PPM	0
Ho	1	5.50	PPM	0
Yb	1	14.8	PPM	0
Lu	1	2.46	PPM	0
U	1	.65	PPM	0
O	1	40.50	PCT	0

Analysts: Ehmann & Morgan, (1970); Goles et al., (1970); Compston et al., (1970).

No Age References