

10048

Sample 10048 is a rounded to subrounded, medium light grey, fine breccia. This sample originally weighed 579gm and measured 13 X 8 X 7cm. Sample was returned in ALSRC #1003 (Bulk Sample Container).

BINOCULAR DESCRIPTION BY: Twedell DATE: 5-25-76

ROCK TYPE: Fine breccia SAMPLE: 10048,0 WEIGHT: 172gm

COLOR: Medium light grey DIMENSIONS: 7 X 3 X 4.2cm

SHAPE: Rounded to sub-rounded

COHERENCE: Intergranular – coherent
Fracturing – few, non-penetrative; one main fracture visible,
Parallel to long axis (PET).

FABRIC/TEXTURE: Anisotropic/Fine breccia

VARIABILITY: Homogeneous

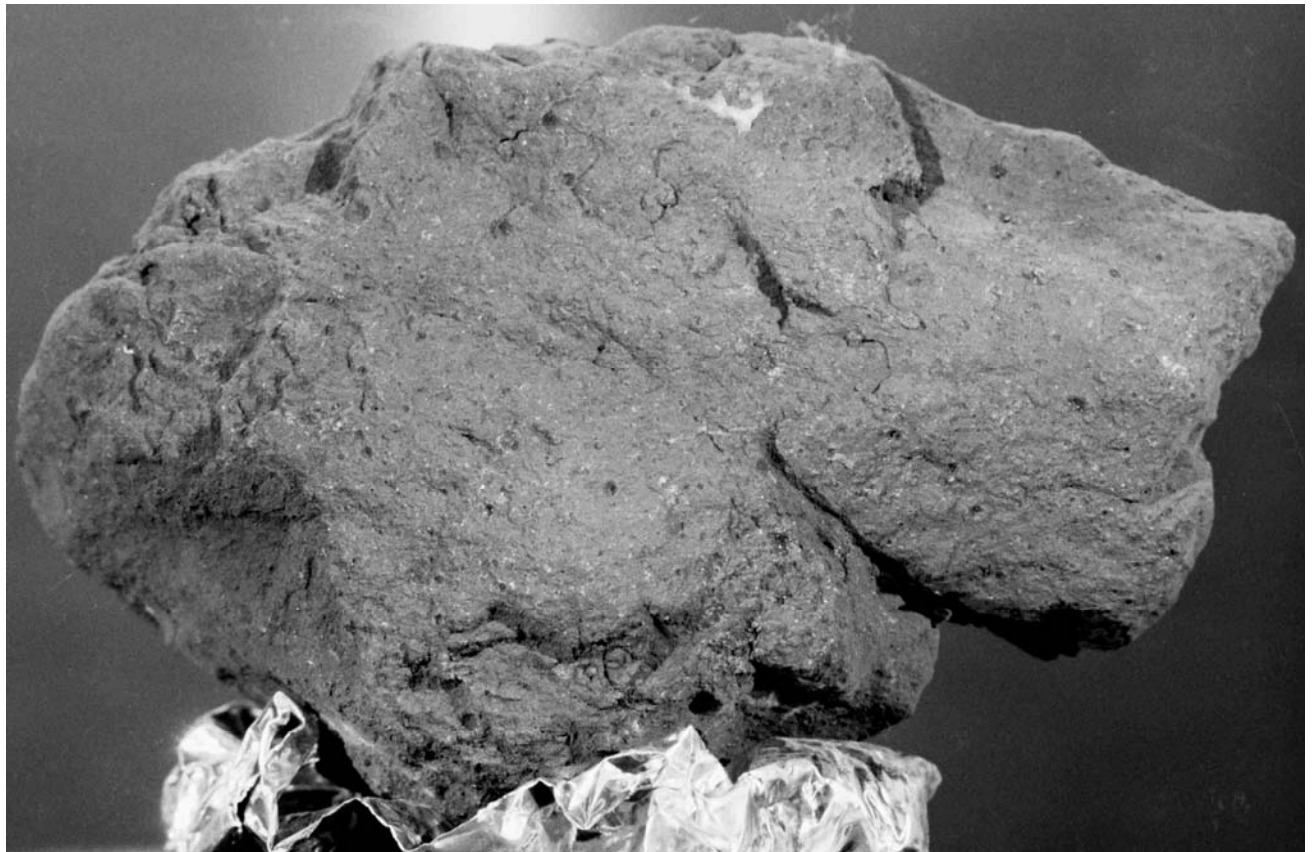
SURFACE: Sawed surface on T₁ and B₁. Smooth E₁ and T₁.

ZAP PITS: Many on T₁, few on E₁, none on others. (Glass lined up to 2mm in diameter)

CAVITIES: Absent

| COMPONENT | COLOR | % OF ROCK | SHAPE | SIZE (MM) | |
|----------------------------|-------------------------|--------------|-----------|-----------|--------|
| | | | | DOM. | RANGE |
| Matrix | Med.Lt.Grey | 96 | ----- | ----- | ----- |
| Basalt Clast ₁ | Honey Brn. and White | 2 | Irregular | 2 | 1-8 |
| Salt & Pepper ₂ | Blk./White | 1 | Angular | 0.5 | 0.2-2 |
| White Clast ₃ | White | <1 | Angular | 0.1 | <.1-.3 |
| Brown Clast ₄ | Brown | <1 | Angular | 0.2 | <.1-.4 |

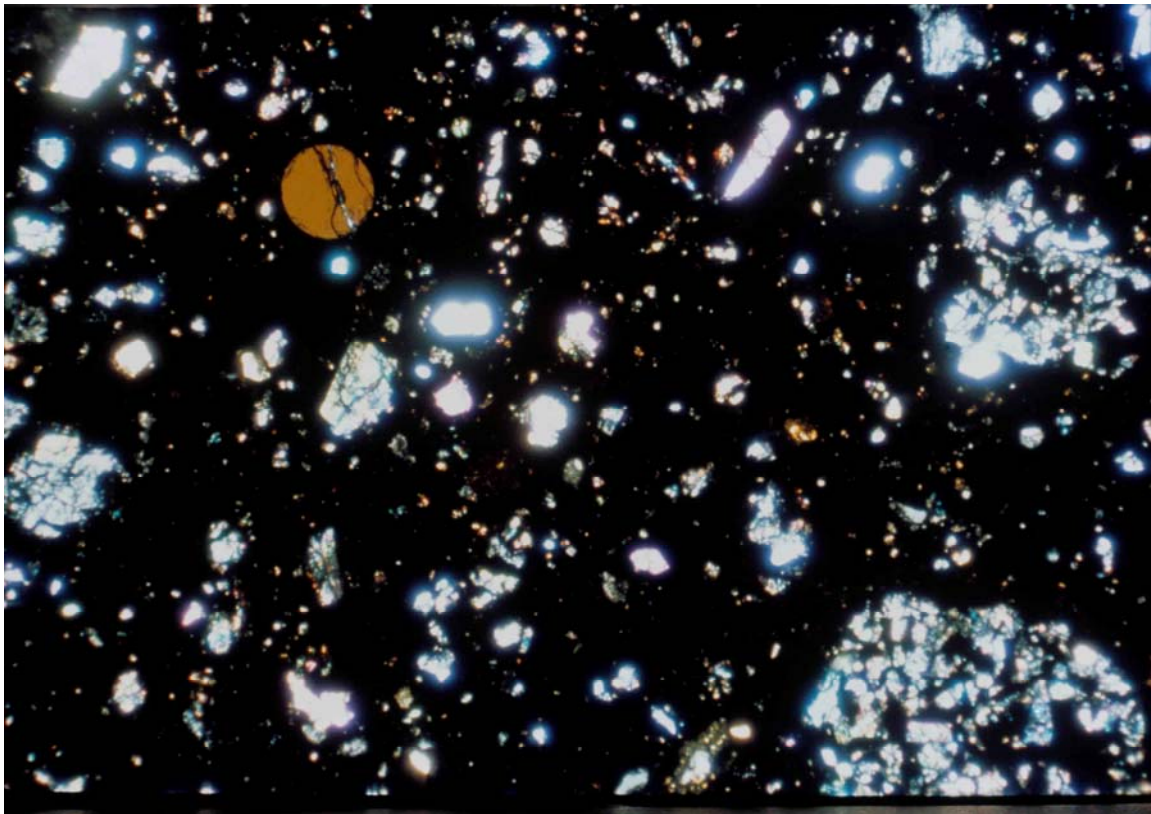
- 1) Plagioclase 50%, Pyroxene 35%, Ilmenite 15%.
- 2) Platy elongated ilmenite 30%, semi-opaque and crushed plagioclase 70%.
- 3) Crushed plagioclase.
- 4) Appears to be composed of pyroxene crystals.



10048,0 Original PET Photo S-69-45673



10048,0 S-76-25615



S-70-49472

SECTION: 10048,33

Width of Field: 2.72mm plane light

THIN SECTION DESCRIPTION

BY: Walton

DATE: 7/15/76

SUMMARY: Partly devitrified typical breccia with a low clast content. Several basaltic clasts occur as large inclusions in the matrix. Most of the matrix has undergone only slight devitrification.

Matrix 67% 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 slightly devitrified. |

Mineral Clasts 19% Rock

| <u>Phase</u> | <u>Relative Abundance</u> | <u>Shape</u> | <u>Size (mm)</u> |
|--------------------------|---------------------------|-----------------------|------------------|
| Pyroxene ₁ | Very abundant | Angular to irregular | 0.001-0.6 |
| Plagioclase ₂ | Present | Blocky to irregular | 0.001-0.1 |
| Opagues ₃ | Moderate | Skeletal to irregular | 0.001-0.1 |

- 1) Several show zoning; most highly fractured.
- 2) Few shards; most show some twin planes.
- X 3) Small blocky to skeletal masses; widely dispersed throughout matrix.

Lithic Clasts 13% of Rock

| <u>Type</u> | <u>Relative Abundance</u> | <u>Shape</u> | <u>Size (mm)</u> |
|--------------------|---------------------------|----------------------|------------------|
| Small | Very abundant | Rounded to irregular | 0.001-1.0 |
| Large ₄ | Six present | Rounded to irregular | >1.0 |

- 4) a. Coarse-grained basalt consisting of pyroxene, plagioclase, and ilmenite.
- b. Very fine-grained basalt with small crystals of pyroxene and ilmenite with probable plagioclase.
- c. Coarse-grained basalt consisting of pyroxene, plagioclase, and ilmenite.
- d. Coarse-grained basalt consisting of pyroxene, plagioclase, and ilmenite.
- e. Fine-grained basalt consisting of pyroxene, plagioclase, and ilmenite.
- f. Coarse-grained basalt consisting of pyroxene, plagioclase, and ilmenite.

Glass Clasts 1% of Rock

| <u>Type</u> | <u>Relative Abundance</u> | <u>Shape</u> | <u>Size(mm)</u> |
|----------------------------|---------------------------|----------------------|-----------------|
| Yellow-orange ₅ | Very abundant | Angular to spherical | 0.001-1.0 |
| White ₆ | Few | Angular to spherical | 0.001-0.5 |

- 5) One large piece with fine-grained inclusions; only a few spheres or part spheres.
- 6) A few sparse fragments of spheres; some devitrification.

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

10048 was removed from ALSRC #1003, split, and organically contaminated in the Bio-Prep Lab. It was later sawed and chipped in SPL. Remaining pristine samples were re-examined in SSPL. A large piece was sent to RCL.

PRISTINE SAMPLES: (All BP-SPL-SSPL)

| | | |
|----|---------|---|
| 0 | 172 gm | Breccia piece. Two sawed surfaces on B ₁ and part of T ₁ . Pits on part of T ₁ . 7 X 3 X 4.2 cm. |
| 49 | 66 gm | Piece. Pitted on one face. Patina on five. –RCL- |
| 51 | 41 gm | Piece. Mated to ,70. One pitted surface. Small amount of patina. 3.5 X 5 X 4 cm. |
| 56 | 1.42 gm | Small breccia chips. |
| 57 | .67 gm | Fines. |
| 58 | 1.37 gm | Fines. |
| 60 | .42 gm | Fines. |
| 62 | 5.75 gm | Fines. |
| 63 | 1.14 gm | Fines. |
| 64 | 1.61 gm | Fines. |
| 68 | 0.28 gm | Fines. |
| 69 | 38 gm | Piece. Two sawed surfaces. 1 pitted surface. Small amount of patina. 3.5 X 4 X 3cm. |
| 70 | 31 gm | Piece. One pitted surface mated to ,51. Small amount of patina. 2.5 X 4.2 X 3.5 cm. |

71 10 gm

One small piece. No pits or patina. 3 X 2 X 1.5cm.

RETURNED SAMPLES:

9 49.79 gm

Piece. 40 chips. Largest is 1 X 0.5 X 0.1cm.
Some have pitted surfaces.

22 18.34 gm

Chip. One pitted surface.

CHEMICAL ANALYSES

| Element | Number of Analyses | Mean | Units | Range |
|--------------------------------|--------------------|-------|-------|-------|
| SiO ₂ | 2 | 40.46 | PCT | 3.48 |
| Al ₂ O ₃ | 4 | 12.40 | PCT | 1.56 |
| TiO ₂ | 3 | 8.77 | PCT | 1.33 |
| FeO | 2 | 16.34 | PCT | 1.28 |
| MnO | 3 | .214 | PCT | .019 |
| MgO | 2 | 7.17 | PCT | .743 |
| CaO | 3 | 11.03 | PCT | .91 |
| Na ₂ O | 3 | .476 | PCT | .039 |
| K ₂ O | 2 | .17 | PCT | .0001 |
| Rb | 2 | 4.16 | PPM | .01 |
| Cs | 2 | .126 | PPM | .004 |
| Sr | 1 | 190.0 | PPM | 0 |
| Ba | 2 | 183.5 | PPM | 33.0 |
| Sc | 2 | 64.25 | PPM | 3.10 |
| V | 1 | 67.0 | PPM | 0 |
| Cr ₂ O ₃ | 3 | .304 | PCT | .031 |
| Co | 3 | 34.0 | PPM | 2.8 |
| Ni | 2 | 185.6 | PPM | 56.8 |
| Cu | 2 | 10.14 | PPM | 1.91 |
| Zn | 2 | 29.4 | PPM | 1.6 |
| Zr | 1 | 240.0 | PPM | 0 |
| Pd | 1 | .013 | PPM | 0 |
| Ag | 2 | .02 | PPM | .007 |
| Cd | 1 | .078 | PPM | 0 |
| Ta | 2 | 1.85 | PPM | .1 |
| Hf | 2 | 13.1 | PPM | 2.8 |
| Jr | 2 | .009 | PPM | .004 |
| Au | 3 | .002 | PPM | .001 |
| La | 2 | 19.2 | PPM | 3.80 |
| Ce | 2 | 47.4 | PPM | 18.6 |
| Nd | 1 | 40.0 | PPM | 0 |
| Sm | 2 | 14.05 | PPM | 1.7 |
| Eu | 2 | 1.93 | PPM | 0.04 |
| Gd | 1 | 19.8 | PPM | 0 |

| Element | Number of Analyses | Mean | Units | Range |
|---------|--------------------|-------|-------|-------|
| Tb | 2 | 3.6 | PPM | 0.40 |
| Dy | 1 | 24.95 | PPM | 0 |
| Ho | 2 | 4.65 | PPM | 0.1 |
| Er | 1 | 14.0 | PPM | 0 |
| Yb | 2 | 13.82 | PPM | 2.75 |
| Lu | 2 | 1.98 | PPM | 0.15 |
| U | 1 | .69 | PPM | 0 |
| Ga | 3 | 5.65 | PPM | 0.7 |
| Ln | 3 | .112 | PPM | 0.12 |
| Tl | 1 | 2.83 | PPB | 0 |
| Ge | 1 | .35 | PPM | 0 |
| Sb | 1 | 8.80 | PPB | 0 |
| Bi | 1 | 1.62 | PPB | 0 |
| 0 | 1 | 39.8 | PCT | 0 |
| Se | 1 | 1.6 | PPM | 0 |
| Te | 1 | .072 | PPM | 0 |
| Cl | 1 | 65.4 | PPM | 0 |
| Br | 2 | .132 | PPM | 0.013 |

Analysts: Ehmann & Morgan, (1970); Rose et al., (1970); Ganapathy et al., (1970); Goles et al., (1970); Haskin et al., (1970); Turekian & Kharkar, (1970); Wasson & Baedeker, (1970).

No Age References