

Physical Match Comparisons

Read SBI-5 and determine examination requested.

Examine known piece(s) and classify type of material:

- 1) Amorphous
- 2) Crystalline
- 3) Fibrous
- 4) Combination

Examine question piece(s) and compare to known for similarities in manufacturing or biological characteristics (class characteristics).

Class characteristics may be defined as:

- 1) Size
- 2) Color
- 3) Pattern
- 4) Dimension
- 5) Composition

Items are then compared macroscopically and microscopically for corresponding unique characteristics that are observed. These may be categorized as:

- 1) Incidental striations or scratches
- 2) Irregular fracture edge
- 3) Inclusions
- 4) Cross sectional contours (valleys and ridges)
- 5) Extrusion markings
- 6) Conchoidal stress lines and hackle marks

Comparisons may be effected by side by side comparison, use of comparison microscope, or by utilizing cast materials such as duplicast, dip-pak casting or mickrosil.

Photograph and note unique points of comparison.

Note any distortion that may be observed between the two items. If insufficient characteristics exist to establish unique comparisons, analyze for organic and/or elemental composition (see procedures for organic and inorganic analysis).

Based on the preceding observations the following conclusions may be reached between the relationships of the materials:

- 1) Items originate from different sources - class characteristics do not match.
- 2) Class characteristics match but no unique comparison established.
Elemental/organic analysis consistent between the two materials.
- 3) Items physically match - joined together at one time.