



Spec. No. 205-054 Rev 3

Title: SCRATCH, CHIP AND POLISH STANDARD REFERENCE, FIBEROPTIC

Next Assy: VARIOUS

Prepared by: R. LOSCH

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1. SCOPE:

This document defines the STANDARDS required for POLISHES of OPTICAL FIBERS and ASSEMBLIES.

2. PURPOSE:

This document gives a visual description of the kinds of fiber ends that may be encountered after polishing for defining the minimum standards of acceptability for PLASTIC CLAD, HARD CLAD POLYMER and GLASS CLAD fiberoptics.

3. REFERENCE DOCUMENTS:

4. EQUIPMENT REQUIRED:

- a. BINOCULAR INSPECTION MICROSCOPE 140X MAG
- b. 1000X VIDEO MICROSCOPE WITH CALIBRATED LINE GENERATOR

5. MATERIALS REQUIRED:

- a. 1630-0002 ACETONE
- b. METHANOL
- c. 2551-0001 COTTON-TIPPED APPLICATOR

6. GENERAL:

- 6.1. The Inspection Microscope (4.a. & 4.b.) and reference illustrations in this inspection procedure shall be used to measure any chip, the size of which is questionably acceptable. This does not mean that the calibrated inspection video microscope must be used to measure all chipped or scratched fibers. The trained operator inspecting each lot of fibers or fiber assemblies should develop good visualization and be able to accurately call unacceptable fibers without spending excessive time measuring each and every scratch, chip, or dig.

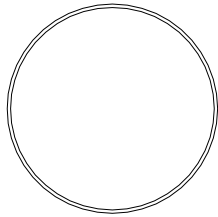
7. ACCEPTABILILTY:

- 7.1. Polish criteria are indicated on the individual fiber optic assembly drawings. This document is a reference to provide a visual description of fiber ends.

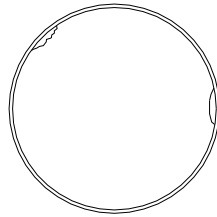


8. EDGE CHIPS, PCS (PLASTIC-CLAD SILICA) AND HCS (HARD-CLAD SILICA)

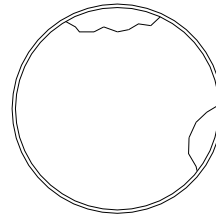
8.1. 400 and 600 micron PCS or HCS fiber:



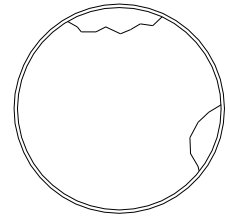
100% CLEAN
NO CHIPS
8.1.1.



CHIP
5% OF DIA
8.1.2.

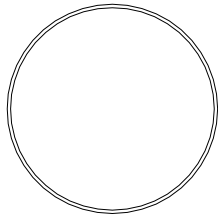


LARGE CHIP
12% OF DIA
8.1.3.
UNACCEPTABLE

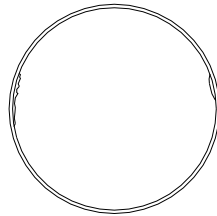


LARGE CHIP
>12% OF DIA.
8.1.4.
UNACCEPTABLE

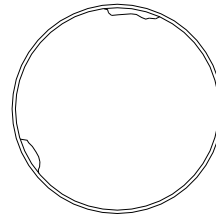
8.2. 800 and 1000 micron PCS and HCS fiber:



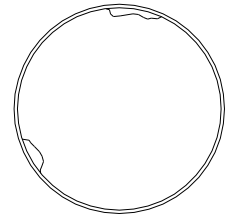
100% CLEAN
NO CHIPS
8.2.1.



CHIP
2% OF DIA
8.2.2.



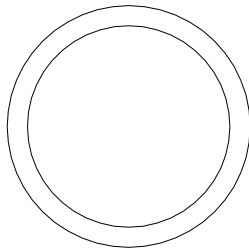
LARGE CHIP
5% OF DIA
8.2.3.



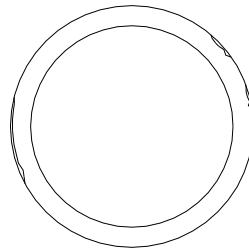
LARGE CHIP
>5% OF DIA
8.2.4.
UNACCEPTABLE

9. EDGE CHIPS, GLASS-CLAD FIBER:

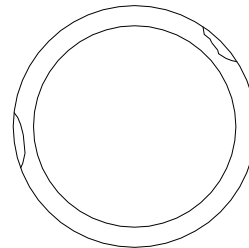
9.1. 1.1, 1.2, 1.4 CORE-CLAD RATIO



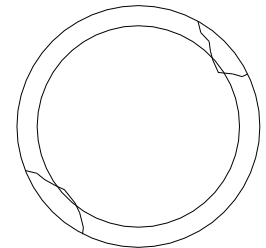
100% CLEAR
NO CHIPS
9.1.1.



SMALL CHIPS
AROUND EDGES
0-25% OF CLAD
9.1.2.



LARGE CHIP
NOT INTO CORE
< 50% OF CLAD
9.1.3.



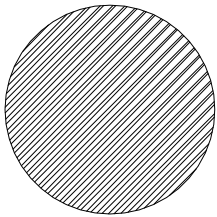
LARGE CHIP
CHIP INTO CORE
9.1.4.
UNACCEPTABLE



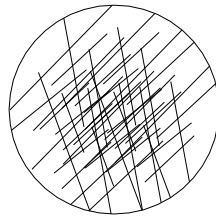
10. POLISH QUALITY:

10.1 This section applies to fibers of all diameters and clad types.

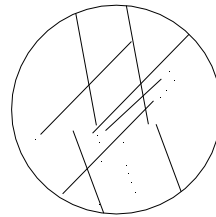
10.2. Abrasive Finishes:



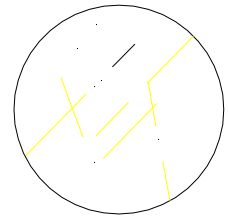
6 micron
DIAMOND
GRIND
6-3um SCRATCHES
ENTIRE SURFACE
10.2.1.



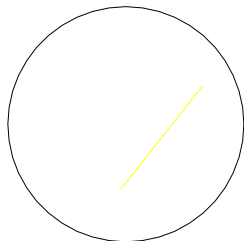
3.0 micron
ROUGH AlOx
POLISH
3um SCRATCHES
TRANSITION TO 1um
10.2.2.



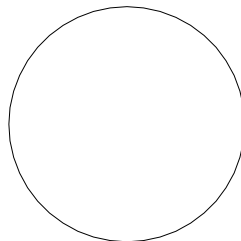
1.0 micron
ROUGH AlOx
"C" POLISH
RESIDUAL 3um SCRATCHES
ACROSS 1um SURFACE
10.2.3.



1.0 micron
AlOx SLURRY
"B" POLISH
1um TEXTURE
NO 3um SCRATCHES
10.2.4.



0.3 MICRON
AlOx SLURRY
"A" POLISH
0.3um TEXTURE WITH
RESIDUAL 1um SCRATCHES
10.2.5.



0.3 MICRON
FINAL AlOx SLURRY
"A+" POLISH, DEFECT
FREE, NO VISIBLE
UNDER 140X MAG.
10.2.6.