Reasons For Not Cleaning Connectors

The most common reasons network installers give when asked about why they do not take the time to inspect and clean fiber connectors during an installation are:

- Why do we have to inspect & clean fiber optic connectors? I thought the suppliers do inspect & clean before the assemblies leave the factory.
- Do we really have to inspect & clean before we mate a connector pair? We can connect everything first and then go back to just fix the problems.
- Do we really have to inspect and clean every connector? I really do not have the time to that with some many connectors.
Why Relying On Factor Cleaning Is Not Enough

Even the best quality manufacturers who do 100% testing are vulnerable to:

- Mold release residues
- Outgassing residues
- Dust particles from contract friction
How Some Cleaning Products Cause Problems

- Dust particles are common on the inner areas of adapters.
- Source of most dust usually comes from paper tissues & foam swabs which are common in cable assembly production.

Dust based contamination is made worse during most factory cleaning processes when ferrule or adapter sleeve pick up a static charge.
Importance Of Cleaning Both Ends Of Pair

Inspecting and cleaning BOTH ENDS of a connector pair before mating:
- Eliminates cross contamination
- Prevents accidental damage to both connector end faces

The dark spots are permanently embedded dust particles.
Accidental Contact During Handling

- Sometimes during the installation process, the way the connectors are handled can contribute to contamination problems.
- The image below is what happens when a connector is touched to a fiber tip and mated.
SFP+ Transceiver Inspection & Cleaning

Small oily droplets on lens

Metal shavings and dust possibly from the end caps on the outer edge.
Best Practice Flow Chart

Inspect Fibre Optic Connector to the applicable end face quality to IEC 61300-3-35 pass-fail criteria in Section 5 for visual inspection.

- End face FAILS Visual inspection
  - Failure Due To CONTAMINATION
    - CLEAN END FACE For Documentation
  - Failure Due To PERMANENT DEFECTS
    - REPLACE Cable Assembly
- End Face PASSES visual inspection
  - RECORD IMAGE For Documentation
  - Reinspect End Face
Importance of Quality Work

It takes 2 seconds for the inspection software analyzing the ferrule surface

- The inspection software eliminates human subjecting for evaluating the quality of the ferrule surface
- The software will give you a report you can give to your customer documenting the quality of your work

It takes 2 seconds to use a mechanical click cleaner to clean a ferrule end face
Expenses Caused By Damaged Cabling

**Tangible Expenses:**
- Truck roll back expense of sending team to identify and fix problem
- Paying operators to test and re certify the damaged fiber link
- Purchasing additional cable assemblies to replaced damaged ones

**Intangible Expenses:**
- Customer frustration due to delays in fixing problem
- Opportunity cost of not being able to take more projects as crew fixes problems
- Upset employees who have to spend extra time identifying and fixing the problems
Wiping Connector End Face

Always wipe in an optical connector going in a single direction.

A figure 8 motion or a back and forth wiping motion will reapply the contamination you just wiped off back onto the connector.
Wet-Dry Wiping Connector End Face

**Step 1:**
Pull a new wipe into the cleaning window

**Step 2:**
Wet one section of the wipe

**Step 3:**
Place connector in wet section and wipe towards dry
Stick vs Mechanical Cleaners

- The cleaners are self-aligning and require minimal operator technique.
- Sticks clean a larger region on the ferrule surface & inner sleeve wall of an adapter.

Clickers’ cleaning tip inside an SC adapter

Cleaning Stick inside an SC adapter
Stick vs Mechanical Cleaners

Step 1: Take stick from package

Step 2: Tilt can, pump & wet stick

Step 3: Insert stick and rotate 6x to 8x in same direction

- Gentle pump will dispense enough cleaning fluid
- Taking out 1 stick at a time prevents cross contamination of remaining sticks
Stick Cleaning For ODC/RDC/AARC Socket

APPLICABLE PRODUCTS:
- MCC P/N POC03M
  *Fiber Optic Splice & Connector Cleaner* cleaning fluid
- MCC P/N S12
  *1.25mm CLEANSTIXX* cleaning sticks

FOR BEST RESULTS:
- Moisten stick taking care not to over saturate
- Angle cleaning fluid can and gently engage pump
- Rotate stick in same direction 6X to 8X in same direction
- Use stick once to avoid accidental cross contamination
Stick Cleaning For ODC/RDC/AARC Pin

APPLICABLE PRODUCTS:

- MCC P/N POC03M
  Fiber Optic Splice & Connector Cleaner cleaning fluid
- MCC P/N P25
  Pin CLEANSTIXXX cleaning sticks

FOR BEST RESULTS:

- Moisten stick taking care not to over saturate
- Angle cleaning fluid can and gently engage pump
- Rotate stick in same direction 6X to 8X in same direction
- Use stick once to avoid accidental cross contamination
Stick Cleaning MT Based Connectors With Stick

- Move the stick in a single direction from bottom to top
- Pushing contaminations across the array or going up and down will damage the fiber arrays
Wet-Dry Cleaning With Mechanical Cleaner

**Step 1:** Wet an optical grade wipe

**Step 2:** Wet an optical grade wipe

**Step 3:** Insert the cleaner and engage

- Avoid oversaturating the cleaning tip
- Small amount of fluids loosens up contamination plus dissipates electrostatic charge
# Wet-Dry Cleaning With Mechanical Cleaner

**Best Practices for Cleaning Fluids:**
- Use hermetically sealed containers to avoid cross contamination
- Less is more – Dispense just enough to clean a connector

**Best Practices for Sticks & Swabs:**
- Rotate stick at least 6X in a single direction
- Limit force to about the same pressure you would use for a writing pen
- Never excessively scrub the end face to prevent scratching with wear particulates

**Best Practices for Wiping Connectors:**
- Wipe connectors in a single direction
- Always wipe MT based connectors (i.e MPO) in a single direction vertical direction
- Tilt end face for APC so the 8˚ angle is touching the wipe

**General Best Practices:**
- Never look directly into a connector with the bare eye
- Inspect, clean if necessary & re-inspect
- Reusing wipes & sticks causes cross contamination
Value Is In The Eye Of The Beholder

- Companies and workers are valued in many ways like gems and vehicles.
- Be the jewel that everyone wants by offering superior quality and higher performance than your competition.

Which emerald has the greater value? Which vehicle has the greater value?