Introducing dusts and chemicals in X-band structure fabrication processes.

(possible procedures to be studied)

1. Material  Non-HIP, purity, OFC
2. Diamond Turning  lubricant, N₂ purged
3. Storage  on a paper dust, scratch, H₂O, humidity
4. Rinse  Alkali: soak/acid/O₂/Pure water/Alcohol/Acetone
          Open system to air
5. Stacking  Hand operation
              Put / Slide / Push / Rotate ...
6. Pre-band / Diffusion bond
       VAC / H₂ furnace
       Carbon heater: General purpose use
       Bad environment in industry production line
       dust, oil, vibration, humidity, ...
7. Transportation
       N₂ purged covered by vinyl sheet
       with O₂, H₂O vapor
       under VAC

Protection of the inner area for RF use should be very important but present fab processes are not designed yet.
**X-band Structure Fabrication Process**

August 28, 2000

*Proceeded by other; look back into appropriate cil.*

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**Transport**

In bond:
- VAC 800°C
- DB 89G
- PB
- Dirty
- Truck
- Clean Room
- SLAC
- T/I, Precice
- K/KEK
- H/Hi/SLAC
- 95PSI
- Length

**VAC**

- 800°C
- DB 89G
- PB
- Dirty
- Truck
- Clean Room
- SLAC
- T/I, Precice
- K/KEK
- H/Hi/SLAC
- 95PSI
- Length
Visual inspection of S- and X-and Structures at KEK

1. S-band 3m-long at ATF
   
   L4  HIP  400\,MW, 1\,psec in 600\,hrs experiment.
   L9  Non-HIP  320/2\,MW, 1\,psec routine operation.

2. X-0.2m  v_g=1%
   
   C: CERN made  70MV/m in 30 hrs, 90MV/m with SLED in several hrs
   (M: Mitsubishi made  70MV/m in 600 hrs)

3. X-0.3m  v_g=4%
   
   K: KEK made, DB  50MV/m in 35 hrs

Result

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| L4 | At #1 iris is pitted heavily.  
At #2 and #3 a moderate pitting is observed.  
Downstream from #4 no pitting is observed. |
| L9 | No damage is seen anywhere. |
| C, K | #1 iris all pitted but #2 and downstream no pitting.  
Crystal growth mesh-like pattern is seen. |
| C | Shiny area was observed but no evidence of pitting in the cell. |
| M | Not visually inspected. |
No significant damage was observed.

Lack spots were observed and the surface was damaged.

Printing on after which:

CEK-ATT S-band linear structure (L4) that has experienced a high-field test.
No evidence of discharge outside.