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FACSIMILE COVER SHEET

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My understanding of an outline of your cleaning procedure. Any comments?

1. dirty tube cleanliness measurements: water break tests, black light inspection (with alcohol), FTIR sampling (flowing 30 ml/ft alcohol down a strip of 3" width), and surface analysis witness coupon (material is not from the 8' section, but is a reference for succeeding tests).
2. black light inspection and solvent wiping of fluorescing areas (pre-spot cleaning).
3. tube section on rolls (20 rev/hr), ends covered with plastic, 580 ml/ft pure Mirachem 500 liquid bath inside, 30 minutes exposure.
4. drain liquid bath, elevate tube end and spray 11.6 l/ft deionized water on walls to rinse.
5. spray 11.6 l/ft deionized water as steam to rinse, using spray rig (travel speed is 6"/ft, wall reaches 130° F).
6. Mirachem cleaned tube cleanliness measurements: water break tests, black light inspection (with alcohol), FTIR sampling (flowing 30 ml/ft alcohol down a strip of 3" width), and surface analysis witness coupon (remove and send to MIT for analysis).
7. tube section on rolls (30 rev/hr), aluminum tube end caps installed with external, inflatable seals, 580 ml/ft isopropyl alcohol liquid bath inside, 7.5 minutes exposure.
8. drain alcohol into clean container.
9. repeat 7. above.
10. alcohol cleaned tube cleanliness measurements: water break tests, black light inspection (with alcohol), FTIR sampling (flowing 30 ml/ft alcohol down a strip of 3" width), and surface analysis witness coupon (remove and send to MIT for analysis).