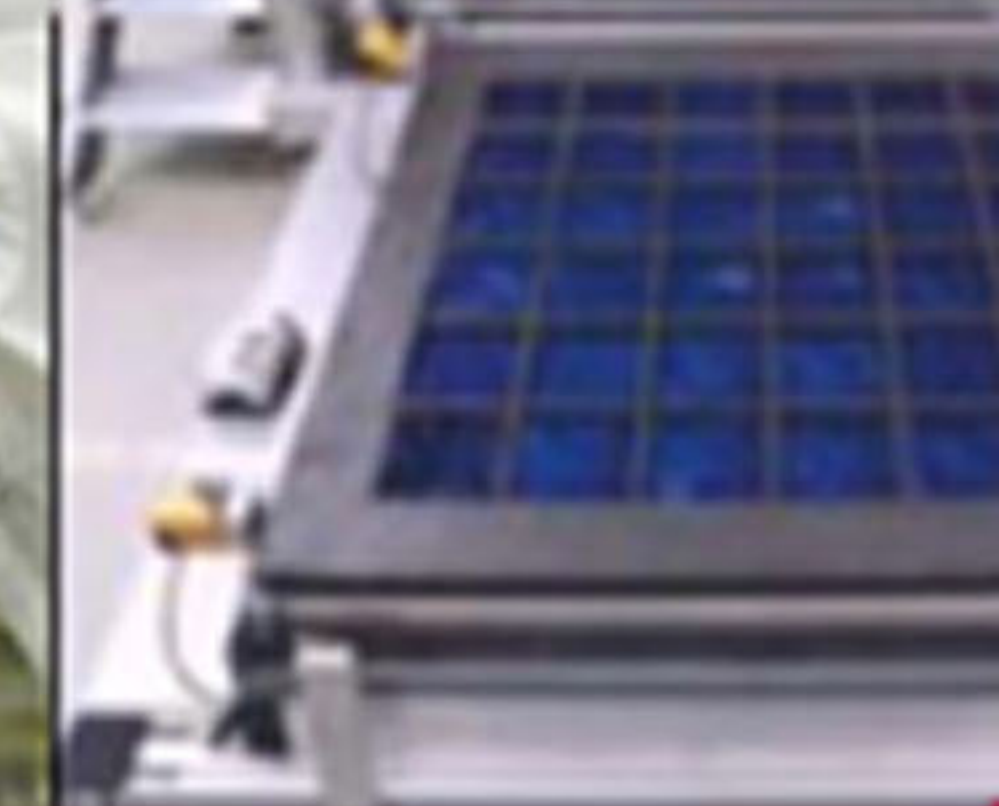




AVALUXE®

INTERNATIONAL

AVALUXE SERVICE



SiN CARBON FIBRE CARRIER CLEANING





AVALUXE[®]
INTERNATIONAL

OMC Scientific Czech SRO

Parts Cleaning Facility

Dedicated & Stand-Alone

- Facility - 1800m²
- Chemical Process Area - 200m²
- CFC Process Area – 5000 Carriers / Yr
- Final Processing Clean Room
- Class 100 / 1000 / 10000

Conveniently located near the German border

ISO 9001:2000 Certified



Environmental Commitment

- The Czech facility operates as a zero discharge facility with all possible systems operating in a recirculation manner.
- Any waste or chemical disposals are handled by an ISO14001 approved company and properly neutralized and disposed
- Williams Czech has a goal to become ISO14001 approved by Q1, 2009



Value Proposition

Complete Turnkey Cleaning Solution

- Total Parts Management
- Parts Receiving & Inspection
- UHV Parts Cleaning & Packaging

Non Aggressive Chemical Cleaning Technology

- Kit lifetime extensions – cost savings
- Largest chemical processing equipment in the industry
- Superior cleaning technology

Surface Coating Technology

- Extended depositions and reduced particles – improved PM schedules and yield

“Local” Service Offerings

- Complete logistical service available
- Extremely quick turn around times

Best in Class Sales and Technical Service

- Local offices and technical support

Environmental Leadership

- Zero emission state of the art facilities





AVALUXE[®]
INTERNATIONAL

Customized Parts Management

Sophisticated parts management software:

- Real time parts tracking
- Full lifetime analysis
- Integrated production and quality control





AVALUXE®
INTERNATIONAL

Customized Parts Management

Particulates

- Surface and Airborne

Organics

- Gravimetric

Ionics

- AA-OES, IC, UV Spectrophotometer

External Labs

- EDAX, XPS, ToFSIMS, FTIR

Impurities

- GDMS, ICP-CID, ICP-MS, LECO





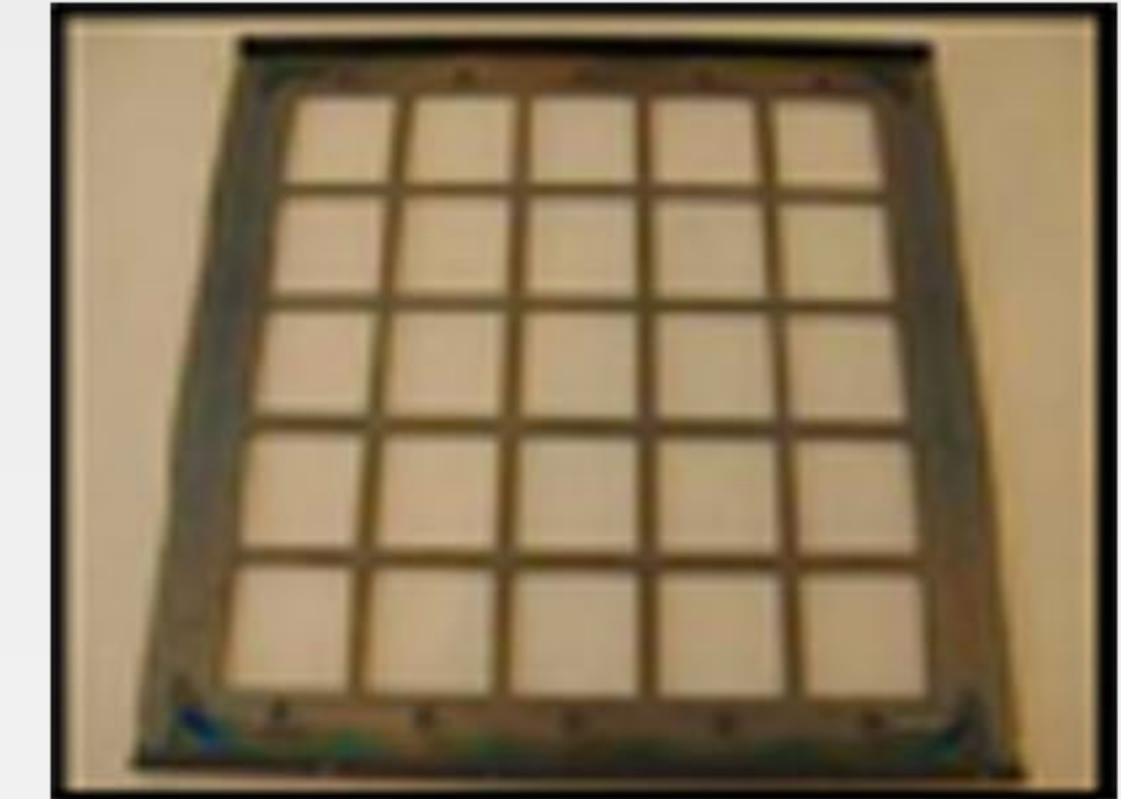
CFC Cleaning – Requirements

- Contamination Spec?
- Out Gassing Spec?
- Current Cleaning Spec?
- Required Cycle Times?
- Volume Expectations?
- Ancillary Parts Supply?



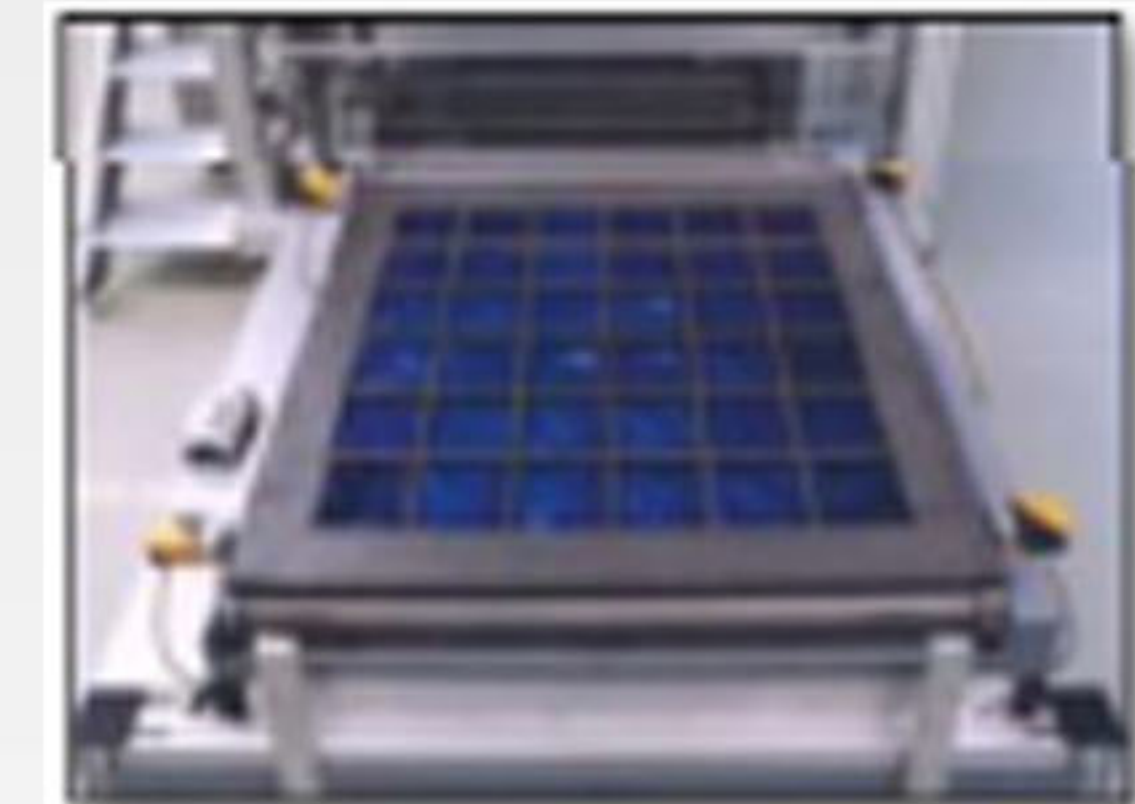
Process Overview

- Incoming Inspection
 - Non Aggressive Chemical Treatment
Non HF Immersion
 - Spray Rinse
 - Proprietary Surface Treatment
 - Spray Rinse
 - High Temperature Bake
 - Inspect
 - Package
-
- 3 tier process options



Advantage

- No HF Immersion
 - Minimise Out Gassing
 - Lower Risk of Cell Efficiency Degradation
 - Less Health and Safety Concerns
 - No Damage to Metal Components (Clips)
- Rapid Turn Around Times
- Minimise Cost
- Extreme Lifetime Testing
- Moisture Sensitive Packaging
- Manage Logistics
- Parts Tracking
- Technical Support



Advantage

■ Features

- NON AGGRESSIVE Chemical Treatment
- Innovative Chemical Process eliminates the need for complete immersion in HF ACID
- Process optimisations ensure RAPID CYCLE TIMES of up to 5 days.
- Capacity

■ Benefits

- Carbon Fibre Carrier Life if EXTENDED by eliminating premature part damage.
- Safety
- Cell efficiency and yield is Maximised since process chamber OUT
- GASSING is minimised
- The cost of spare parts is reduced as CYCLE TIMES are short enough to reduce inventory levels





Ongoing R&D

- Working Closely with OEM's
- Completed Various Test Samples
 - Determine Best process
- Completed Full CFC Trial
- Age Experimentation
 - 22 Standard Cycles
 - No damage to CFC Substrate
- Increased Parameter Testing
 - 20 Cycles
 - 100% increase in concentration of Cleaning Chemical
 - 33% increase in temperature of Cleaning Chemical
 - 50% increase in contact time Surface Treatment

