



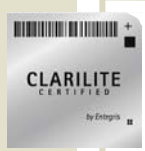
*The materials integrity management company*

# Clarilite Certified System

## A Solution to Prevent Reticle Haze



# The Clarilite Message

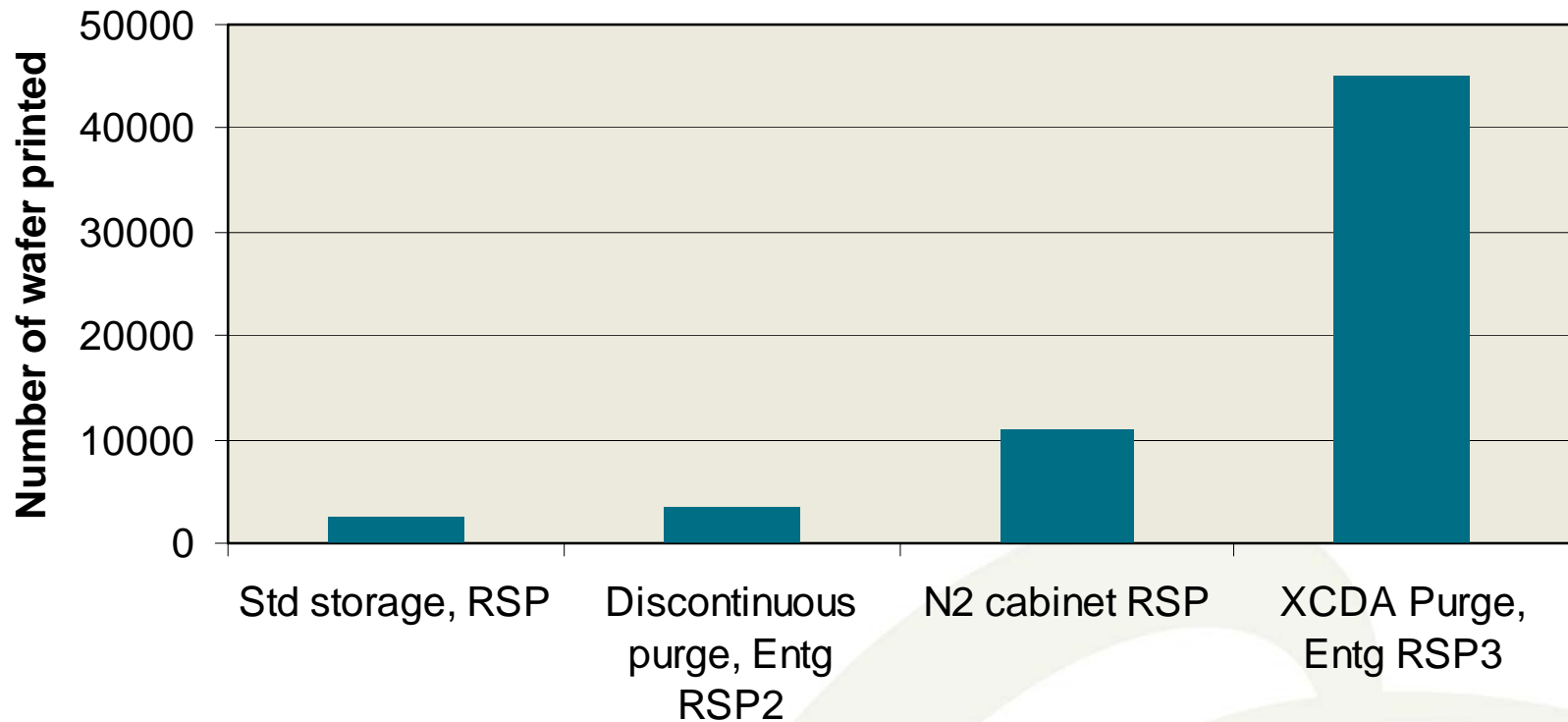


- Clarilite Certified Haze solution can dramatically increase MTBC (Mean Time Between Clean) of reticles due to haze formation in 193nm lithography process.
  - The Entegris approach is unique compared to the rest of the industry in that we are preventing haze formation instead of eliminating the haze constituents.
  - This is accomplished through controlling and purifying the environment around the reticle between uses.
  - Users can expect a 4-5x increase in meantime between reticle cleaning

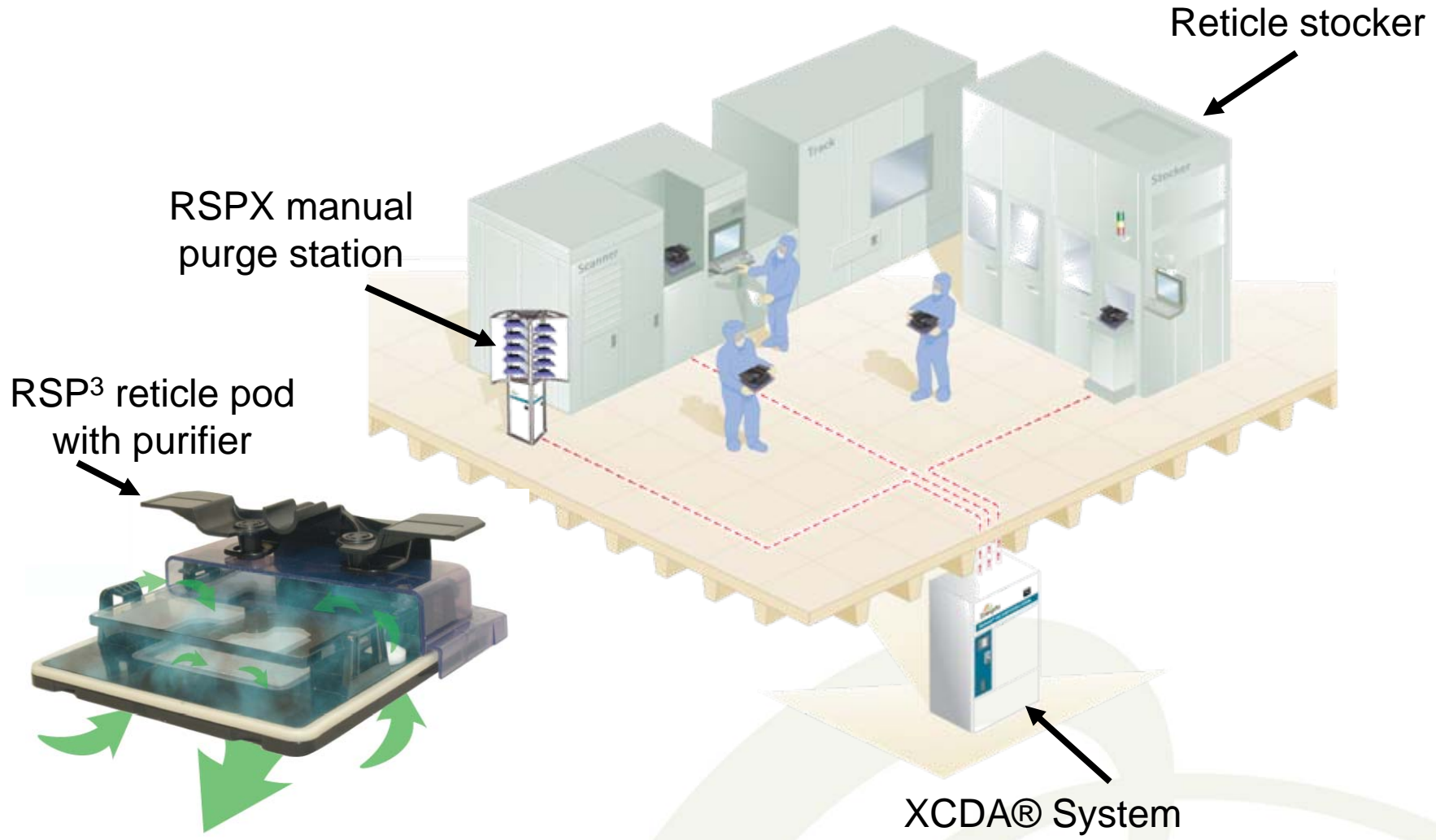
# Performance Comparison



## Meantime Between Reticle Cleans



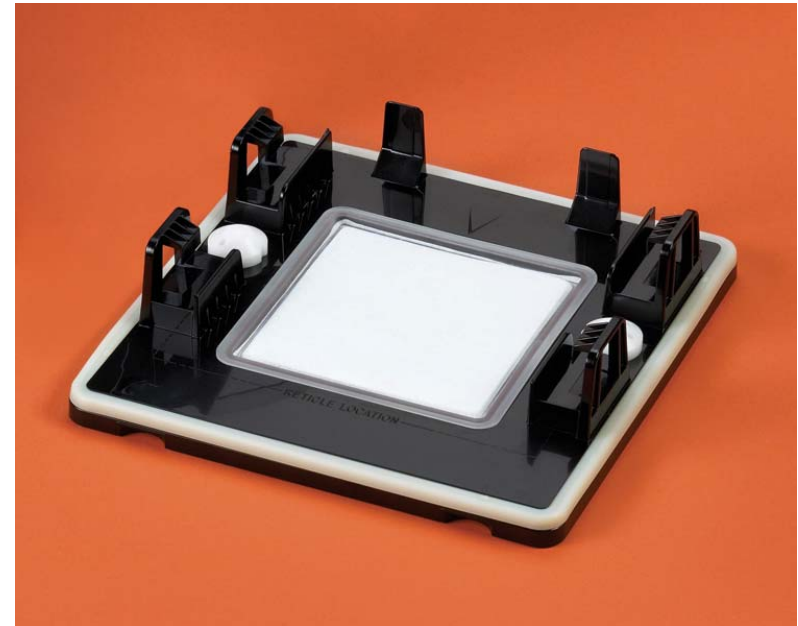
# Clarilite Certified Solution Overview



# Reticle Pod RSP<sup>3</sup>



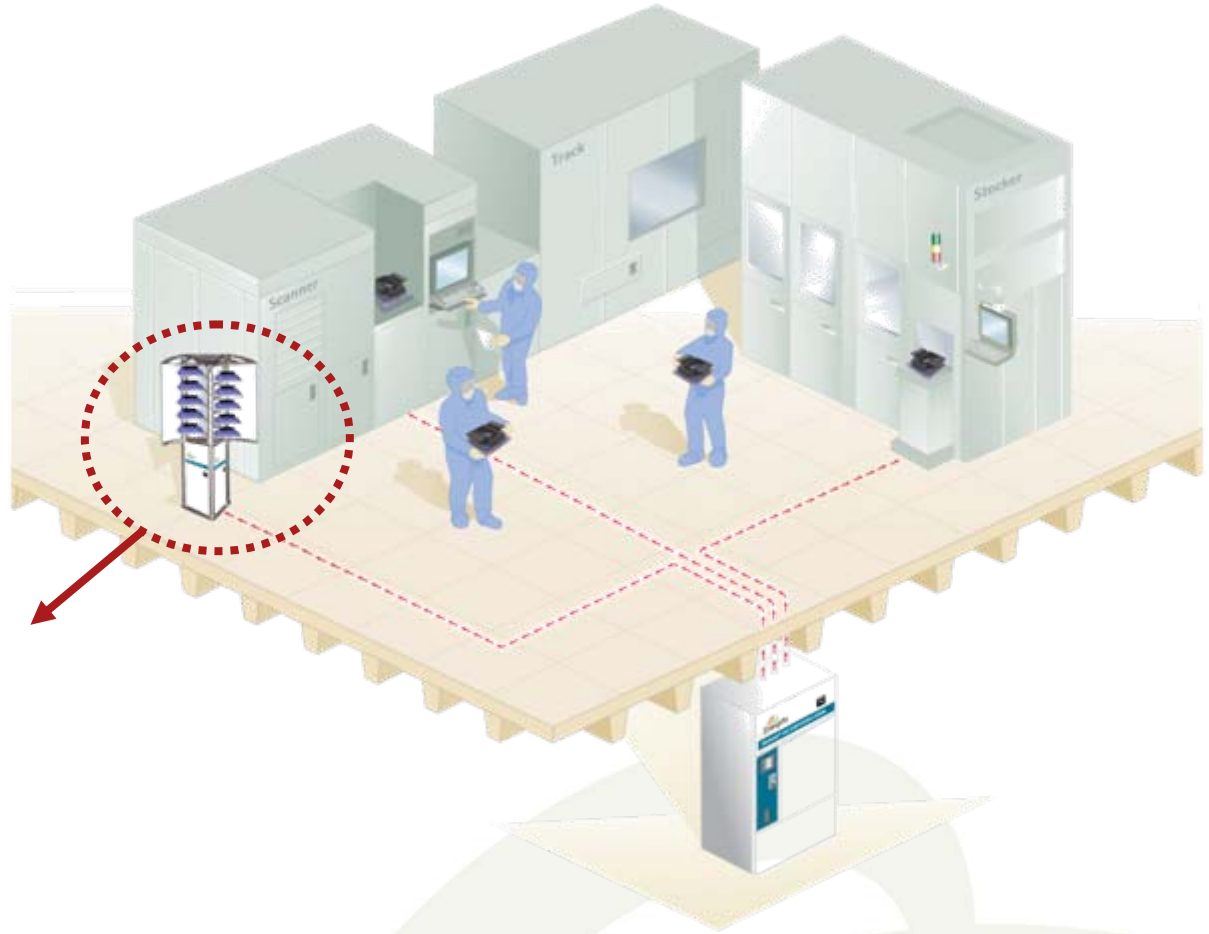
- Semi Standard SMIF Reticle POD.
- Diffuser: Interfaces with the shelf of the stocker ( 2 inlet ports), directing the flow onto the wall of the reticle dome.
- Passive purifier located close to the reticle; traps contaminants (amines, sulfites, organics and moisture, and prevents particles from reaching the Mask.
  - The passive purifier works in both directions :
    - From inside to outside : trapping potential contaminants coming from either the Mask itself or the reticle POD.
    - From Outside to inside : Protecting the environment from penetrating inside the mini-environment.



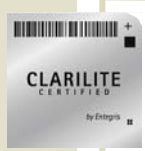
# RSPX Manual Purge Station



- 10 reticle POD purging capacity
  - RFID optional



# RSPX Manual Purge Station

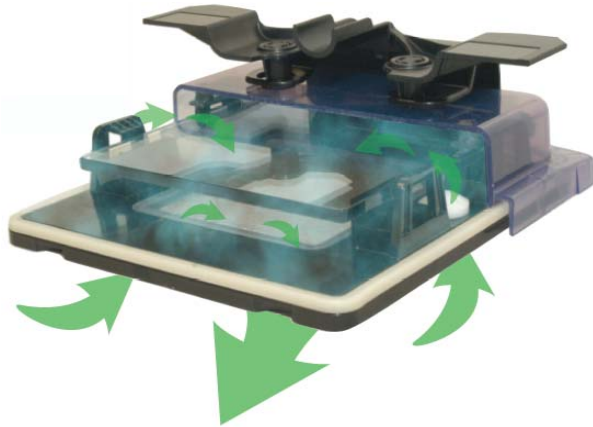


- Objective is to maintain the reticle pod environment in its optimum condition near point of use
  - Purging extends purifier life
  - Buffer station to keep the reticle in optimal condition while waiting to be loaded in the scanner
  - Location allows for quick transfer to purge station without the need to transport back to the stocker

# XCDA® Purge



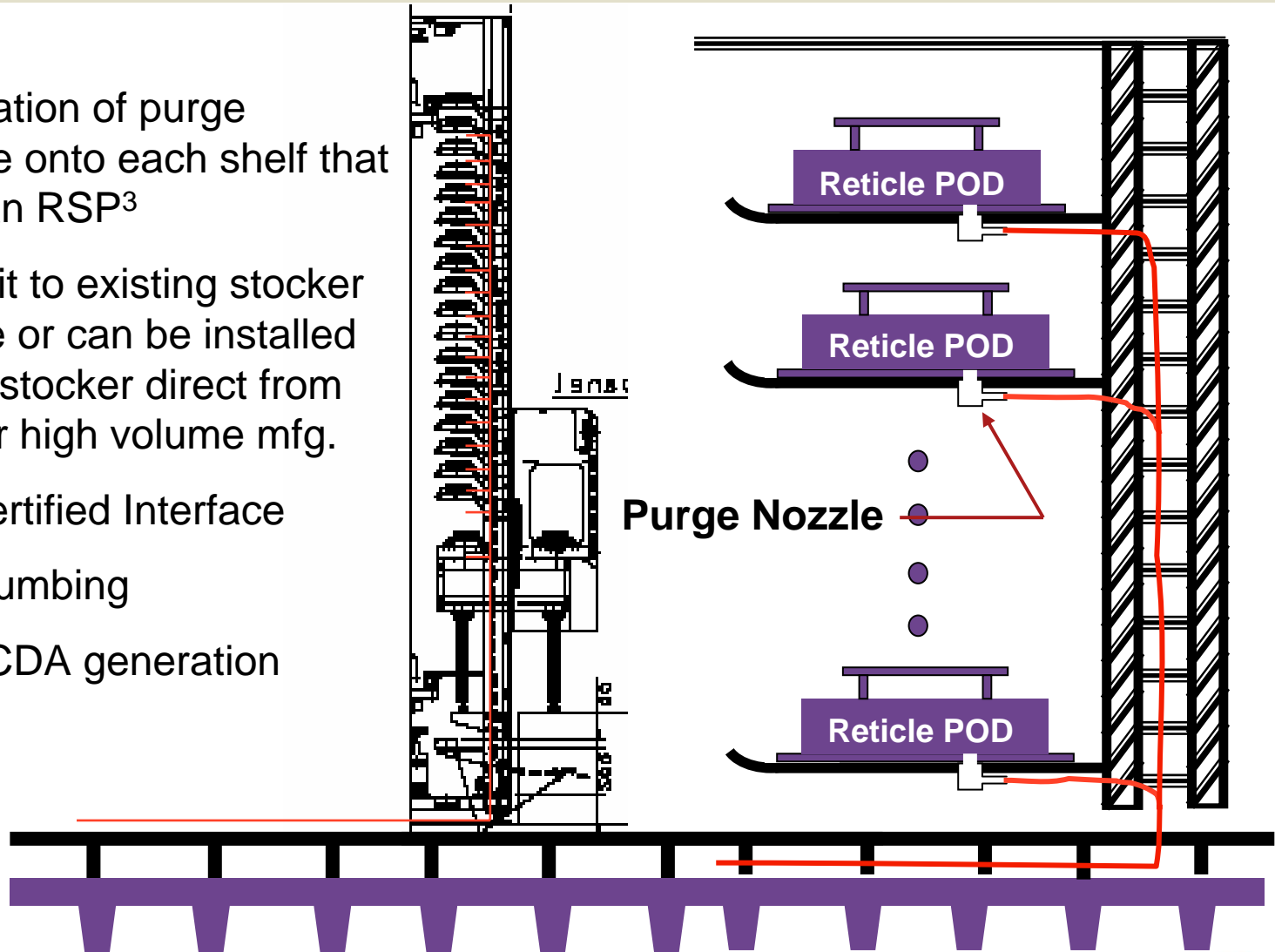
- XCDA helps remove hydrocarbons
- Removes H<sub>2</sub>O, a major contributor to haze growth
- A safer alternative and comparatively less costly than other purge gases



# Reticle Stocker: Clarilite Solution



- Integration of purge interface onto each shelf that stores an RSP<sup>3</sup>
- Retrofit to existing stocker possible or can be installed on new stocker direct from OEM for high volume mfg.
- Certified Interface
- Plumbing
- XCDA generation

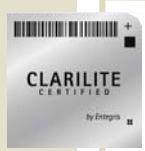


# XCDA<sup>®</sup> vs. N<sub>2</sub> Purge



Overall Comparison		
Purified Purge Gas Type	Purified Nitrogen	Extreme Clean Dry Air (XCDA)
Outlet Purity Performance	Excellent	Excellent
Cost-of-Ownership	Good	Excellent
Safety Concerns	Poor Asphyxiant	Excellent Safe - Non-Toxic
Overall Attractiveness	Good	Excellent
Cost comparison	15 to 40	1

# XCDA<sup>®</sup> vs. N<sub>2</sub> Summary



- Although N<sub>2</sub> addresses moisture and ammonia reactants, it has inferior capacity to clean surfaces already contaminated with Hydrocarbon deposits
- COO model is more favorable for XCDA
- Pressure differential between N<sub>2</sub> in pods and XCDA used in scanners is an issue
- XCDA is safe, N<sub>2</sub> can be dangerous
- Looking at all the benefits, XCDA is the most logical solution for reticle haze prevention