



# RESI ChemWaste System

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**An Intrinsic Safe and Reliable  
Chemical Waste / Solvent Handling System  
For Semiconductor Manufacturing  
And Chemical Process Industries**

**Tel: +886-4-2472-6600**

**E-mail: [ronhsin@resi.com.tw](mailto:ronhsin@resi.com.tw)**

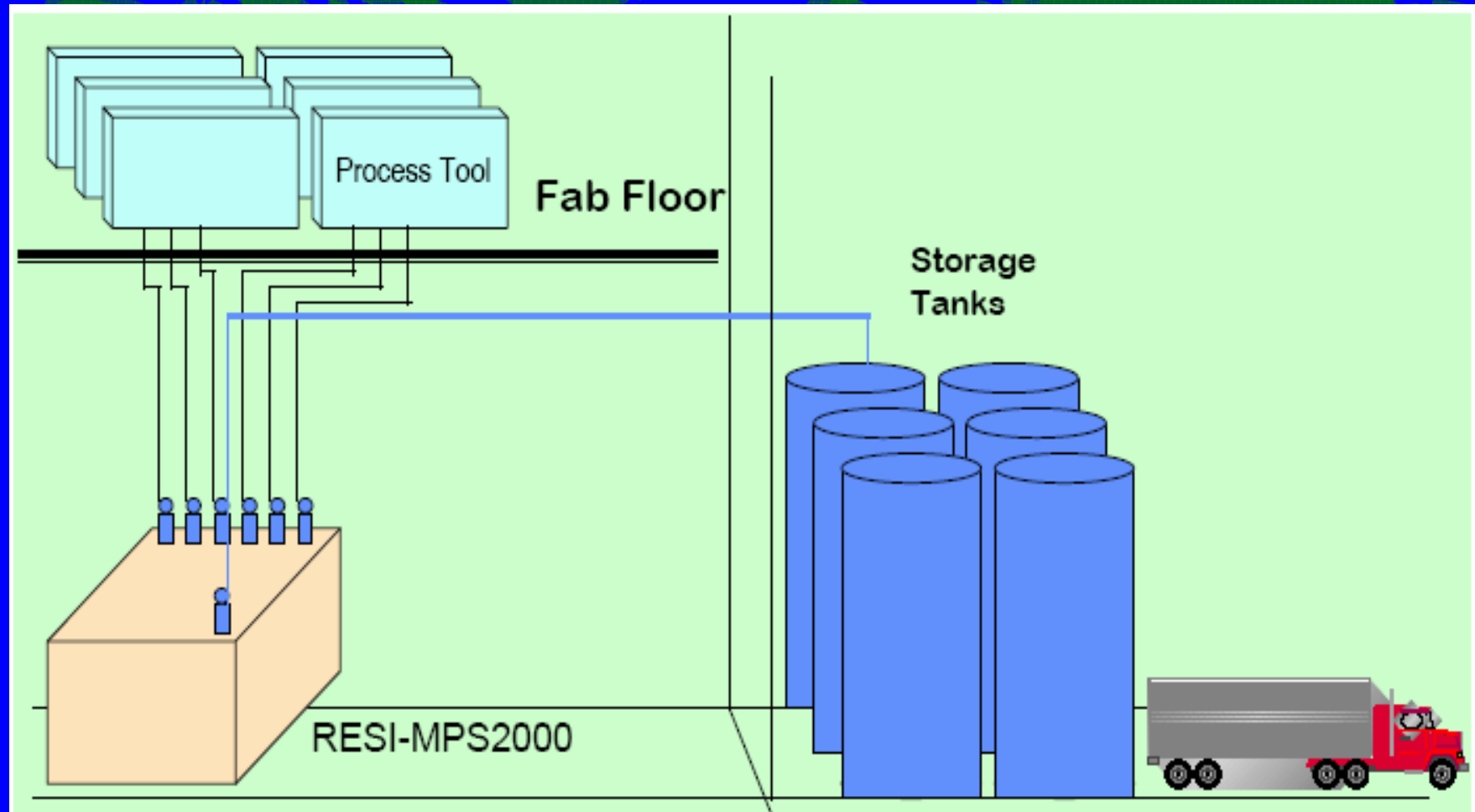
**<http://www.resi.com.tw>**

# Solvent Collection in High-Tech Industries

**Drum collection units were used.  
Potential risk of fire hazard,  
spillage, VOC contamination.**

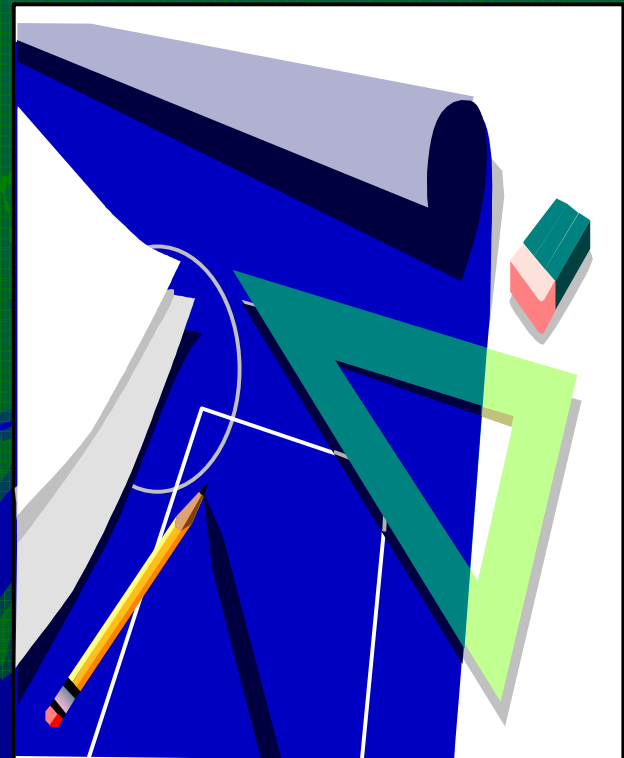


# Clean and Safe Solution ChemWaste System



# RESI ChemWaste System

- a modularized chemical waste handling system.
- provides safe, efficient, and economical way for waste removal from process tools.





# Purposes & Functions of ChemWaste system

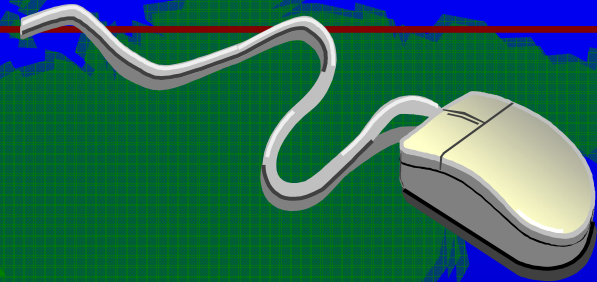
- **Eliminating the Risk of VOC Waste solvent collection**
- **Reducing the Waste solvent Storage in Factory**
- **Process Automation for reducing the cost of operation personnel**
- **Minimizing the potential risk of accidents and fire**

# SYSTEM COMPONENTS

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The system consists of:

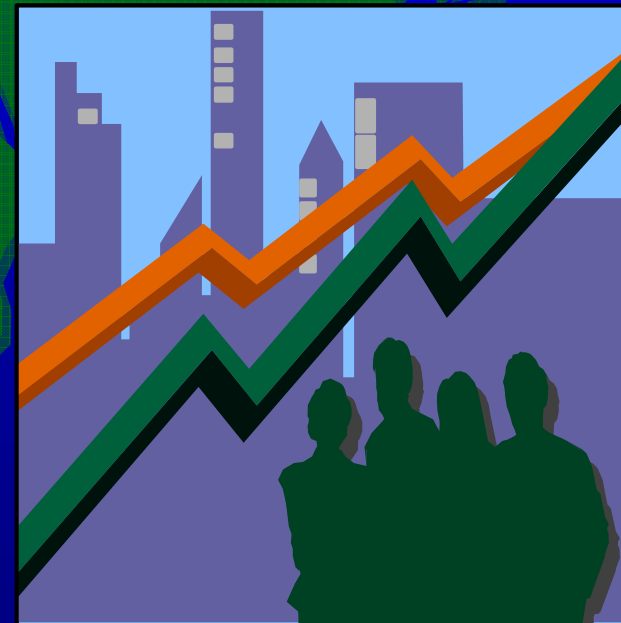
- Mini-Pump Stations (MPS)
- inter-connecting pipe system
- Safety devices
- storage tanks
- computer control system

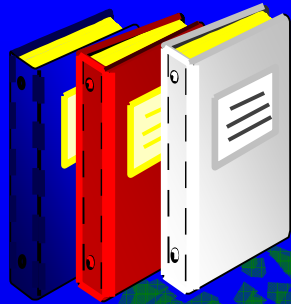




# MPS - Efficient and Effective Mini-Pump Station

- **Strainer Module** - Removing process debris
- **Pump Module** - Air driven diaphragm pump
- **Air Drive Module** - Air supply/control system
- **Safety Module** -
  - VOC Monitor
  - Spill and leakage detection
  - Nitrogen Blanketing System
  - CO2 Fire Protection System
- **Capacity** 2, 3, 5, 10, 20, 50 gallons





# System Specifications

- Constructed of chemically resistant material
- All stainless steel structure and Teflon packing
- Component performance diagnosis system
- Automatic spill and leakage detection
- Overfill alarm and interlock
- Central computer control





# MPS-2000 Design Features

## ■ Robust

### Duplex components design

- Strainers, Pumps, Level Elements

### Easy Maintenance

- Modularized design

### Component failure auto-detection

- Level: dual elements, capacitive sensor HH check
- Pump: dual pump, PT pressure low check
- Strainer: DP differential pressure high check

### Heavy Duty Material

# MPS-2000 Design Features

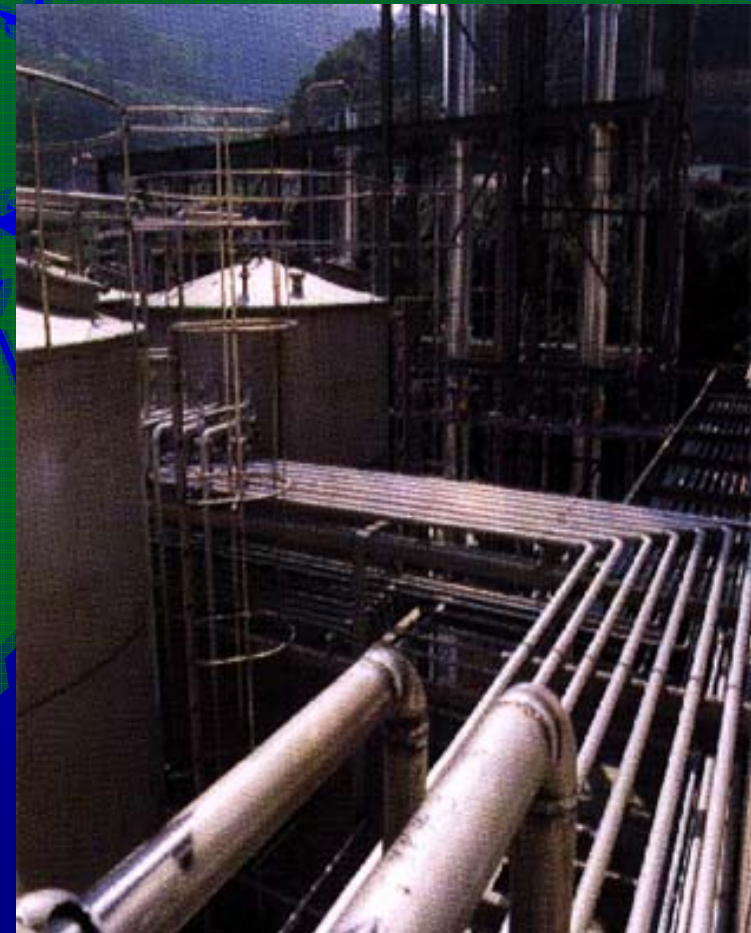
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## ■ Safety

- ☺ Leakage detection for cabinet
- ☺ Auto-Leakage detection for diaphragm pumps
- ☺ Nitrogen blanketing for cabinet and holding tanks
- ☺ VOC detection system
- ☺ CO<sub>2</sub> extinguisher system
- ☺ Heat Vent Network
- ☺ Standby Holding Tank for system failure protection

# Piping System

- **Separate supporting pipe rack**
- **High point vent**
- **Low point drainage**
- **Double shut-off valves**
- **Pipe to storage tank with**
  - ▣ **air driven shut-off valve**
  - ▣ **in-line flame arrester**
  - ▣ **check valve**
- **Pipe end cleaning provision**
  - ▣ **flange, ball valve**

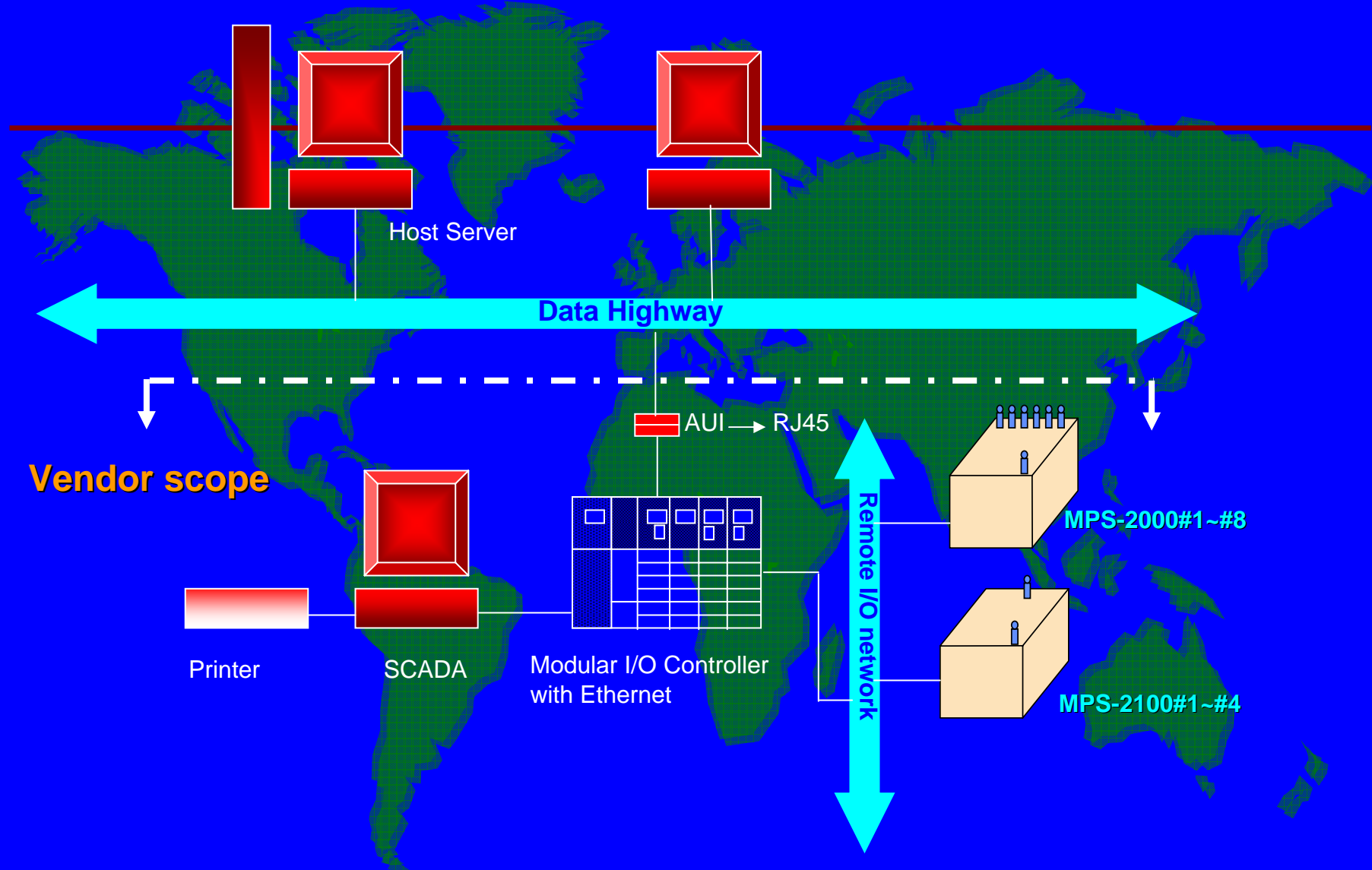


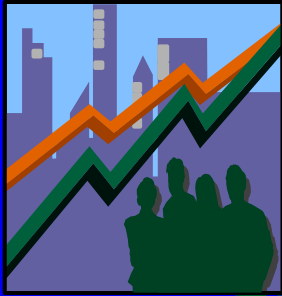
# Computer Control System

- PLC-based control system
- Win-98 / Win-NT compatible Man-Machine Interface
- Displays chemical storage and removal graphically
- Display system actions graphically
- Audible and visual alarms
- On-line events reporting



# ChemWaste System Control Configuration





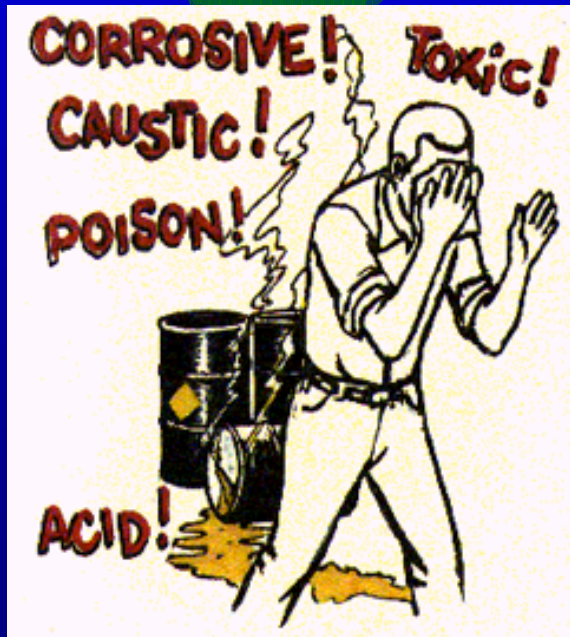
# Design Standards & Codes

- **System - CPI design concept**
  - follow ANSI standards
  - in compliant with CFR regulations
- **Mechanical - durability & reliability**
  - follow ASME codes
  - in compliant with CNS standards
- **Safety - top priority concern**
  - only FM Approval Supplier will be selected
  - follow NFPA & UFC codes
  - follow OSHA requirements for VOC handling



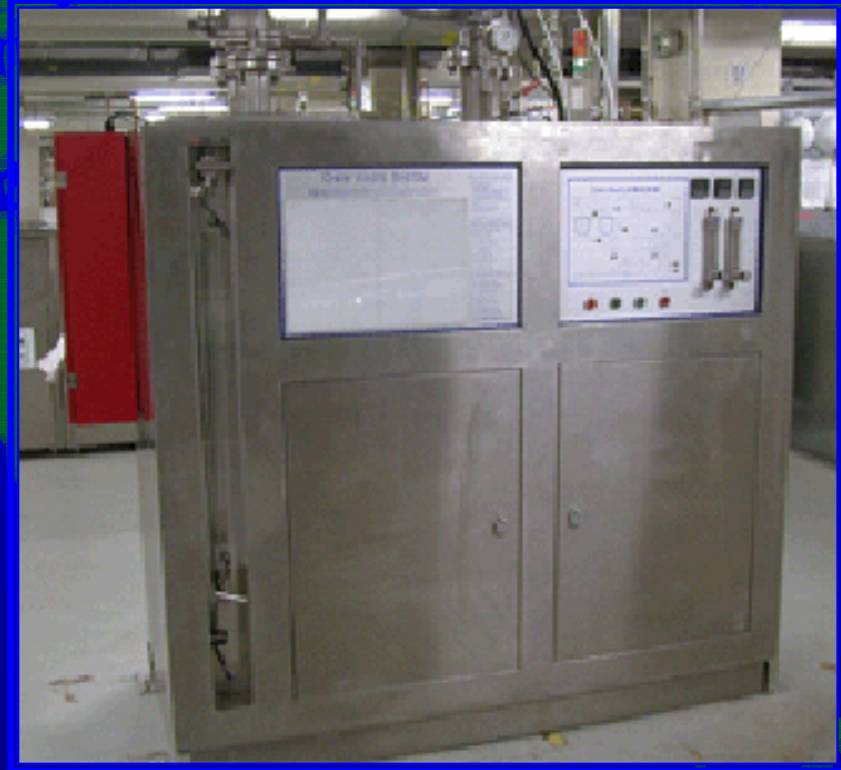
# TSMC Fab#3 & Fab#4 original solvent collection system

- Drum collection units were used.
- Potential risk of fire hazard, spillage, VOC contamination.



## MPS-2000

- 8 units of MPS-2000 were installed in tsmc fab#3.
- Eliminating disadvantages and potential fire hazards of original system completely.









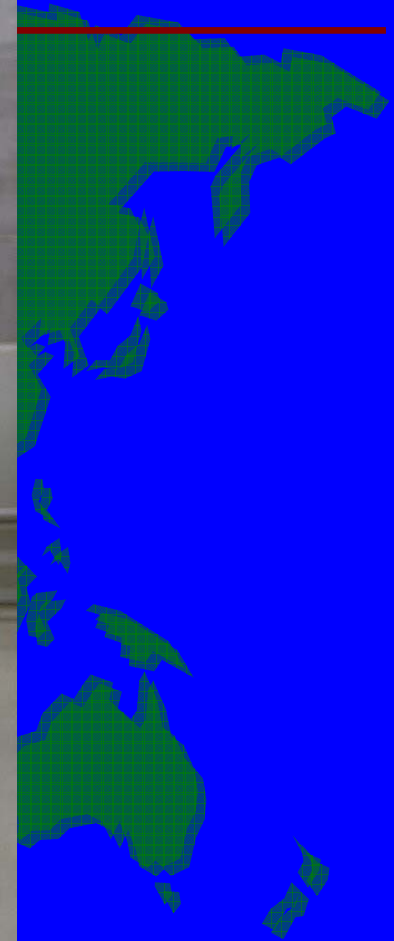




# MPS-2100 (SPA)

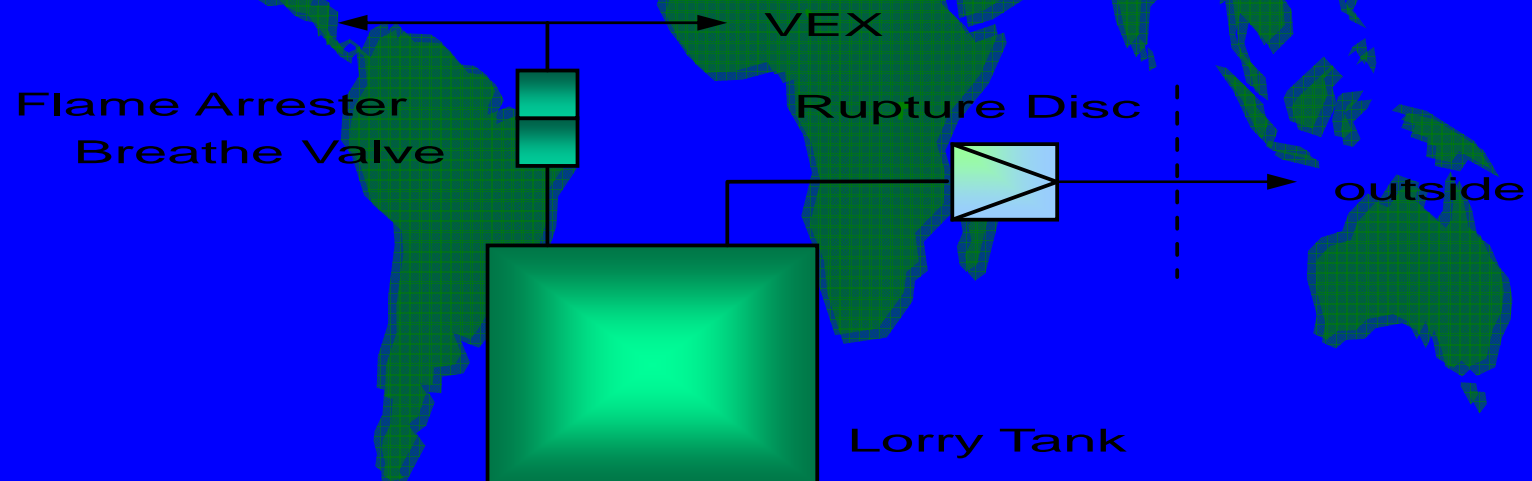
- **S: Strainer Module**
- **P: Pumping Module**
- **A: Air Drive Module**





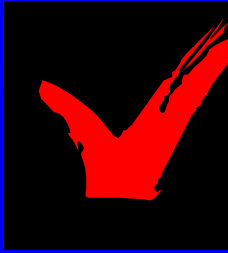
# LORRY TANK

- Heat Vent with Rupture disc
- Breathe Valve & Flame Arrester









# System performance & Reliability

- **System tested, Verified and Approved by**
  - Shenly Chemical Industries (Solvent recovery)
  - TSMC (Solvent collection)
  - LCPC (Solvent combustion)
- **Double Protection Design**
  - Duplex elements
  - Failure detection
- **Fault Tree Analysis Verified**
- **Minimum time between failure 7,000 hrs**
- **24 hours hot line service**

# RESI -- YOUR BEST ENGINEERING PARTNER

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- **WE PROMISED TO PROVIDE YOU....**

- ☎ THE *RIGHT SOLUTION* FOR YOUR SPECIFIC PROBLEM
- ☎ THE HIGHEST *QUALITY PRODUCTS*
- ☎ THE BEST *RESPONSIBLE SERVICES*

- **WE ARE THE ONLY PARTNER.... with**

- ☎ SOUND EXPERIENCES IN WASTE SOLVENT AND CHEMICALS HANDLING
- ☎ PROFESSIONAL KNOWLEDGE OF HAZARDOUS CHEMICALS HANDLING

- **SLECTING RESI**

**= SOLVING YOUR DIFFICULTIES**



# THANK YOU

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..... FOR SELECTING RESI.....

