

An aerial photograph of a large, irregularly shaped ice floe floating in the dark blue ocean. The ice is white and textured, with some shadows indicating its uneven surface. A polar bear and its cub are visible on the ice. The water around the ice is dark blue with white foam from the ice's movement.

# **Munters Corporation Zeol Division**

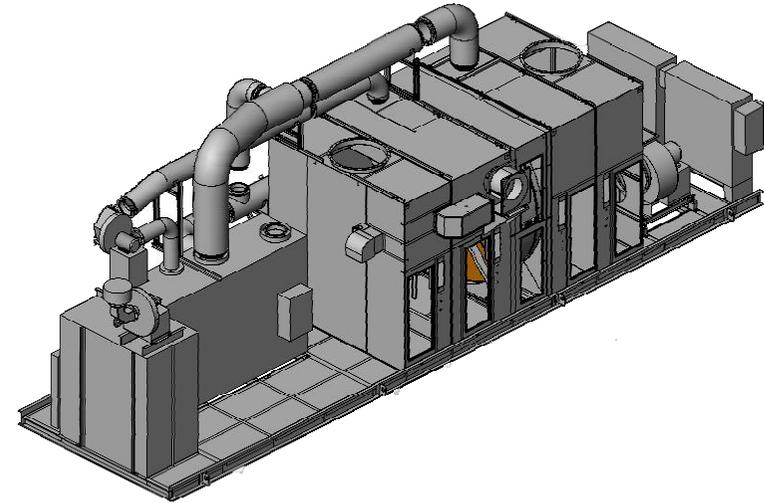
## **Zeol Introduction**



# 제품 및 영역: Zeol Division

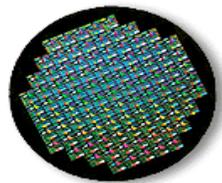
## 제품:

- 환경보호시스템
- 유해공기로부터 휘발성 증기 및 냄새 제거



## 영역:

반도체



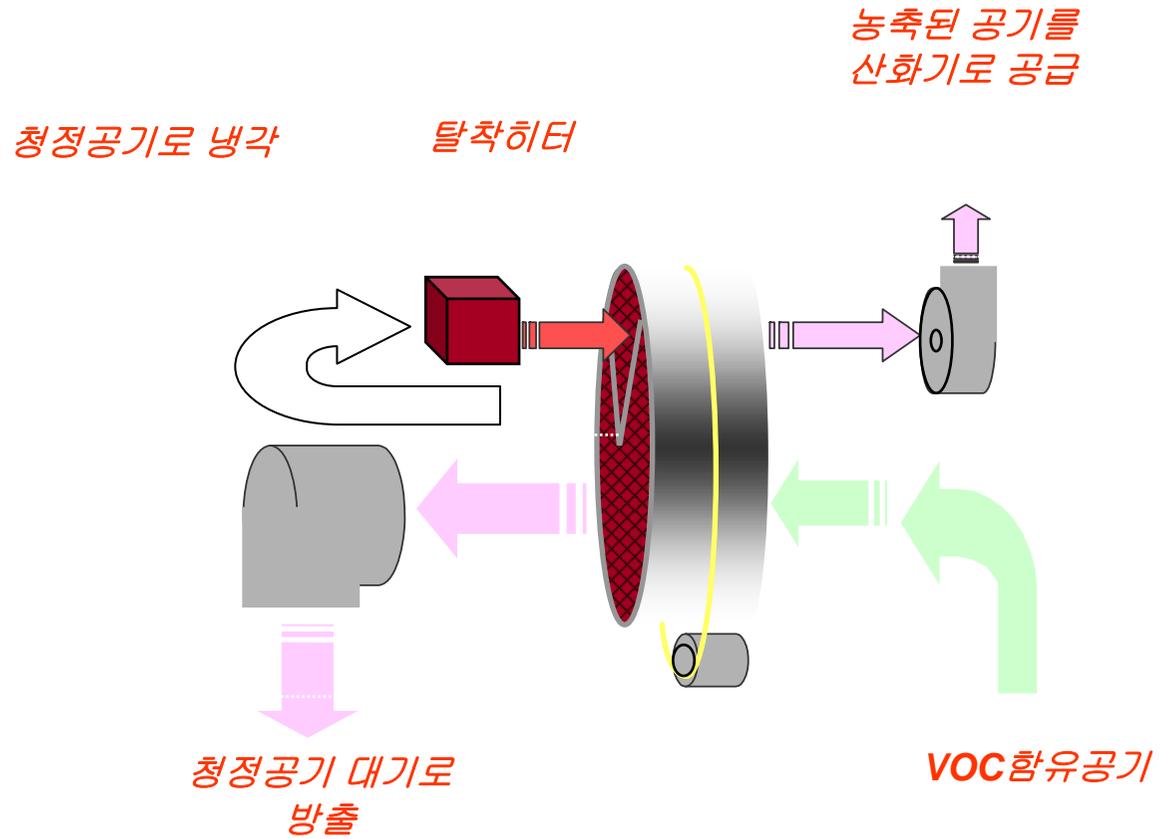
도장설비



A/S



# Munters VOC 농축기술





# Zeol's Business

## *“We Support Compliance”*

- 고객이 요구하는 최적의 대기오염방지 설비제공.
- 현재와 미래에 요구되는 전세계적인 규제법안에 부합하는 시스템.
- World class service.
- 기존 대기오염방지설비의 대안

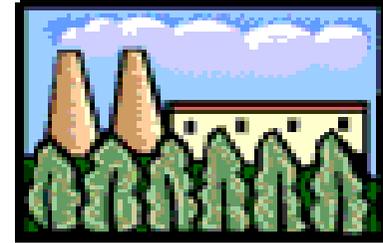


# The Zeol Solution

- 산업현장에서의 배기가스 VOC 규제
- 제올라이트 방식의 장점.
  - 경제성:
    - 에너지비용의 절감
    - 설치비의 감소
    - 유지보수비용의 절감



# 기존 VOC 제거설비의 특징



- 직접연소 / RTO,RCO 산화방식



- 배기량이 크고 **VOC** 함유량이 적을 경우 연소에 필요한 에너지 비용이 매우 크다

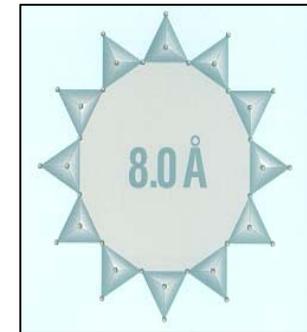
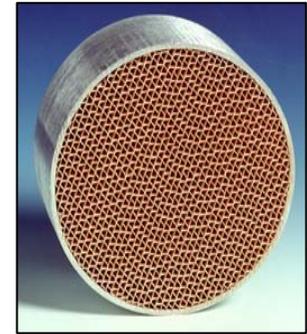


# Customer의 공통적인 문제점

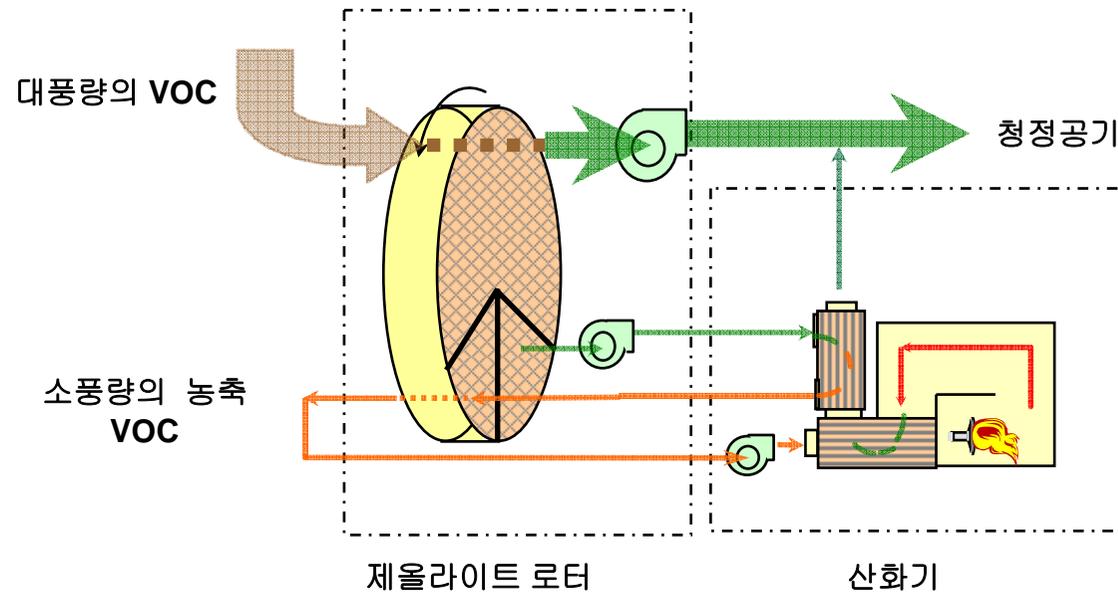
- 배기 풍량이 크다
- Volatile Organic Compounds 의 함유량이 적다.
  - Solvents, Acetones, Paint Thinners ...
- 대기오염방지규제법안의 강화

# 문터스 - Zeolite 해결방안

- 제올라이트는 다양한 흡착성능을 가진 자연의 무기물
- 문터스는 인공합성한 제올라이트를 상요하여 VOC의 흡착과 탈착을 용이하게 제조.
  - 40°C 이하, VOCs 흡착
  - 150°C 이상, VOCs 탈착
- 제올라이트는 Honeycomb 로터에 함침
- 활성탄과 비교시 제올라이트의 장점
  - 제올라이트는 매년 교체가 필요하지 않음
  - 제올라이트는 발화되지 않음
  - 제올라이트는 수분을 흡착하지 않음

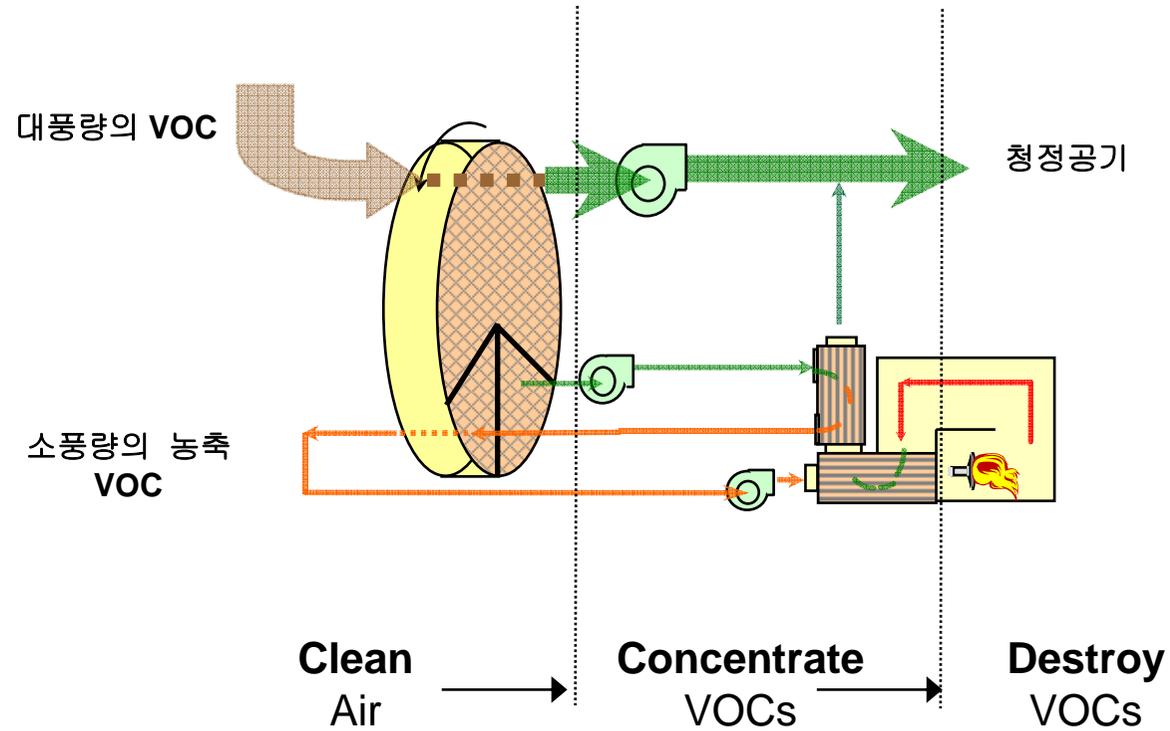


# 문터스의 농축 기술



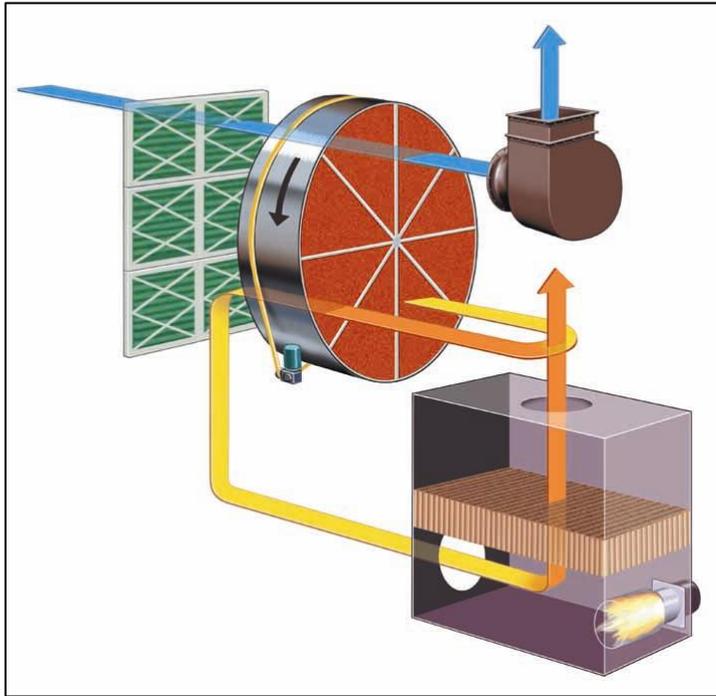
- Capture VOCs onto Zeolite Rotor.
- Concentrate VOCs into small air flow.
- Convert (oxidize) VOCs to safer compounds.
- Significantly lower oxidizer energy consumption.

# Munters Solution: Simple and Effective!

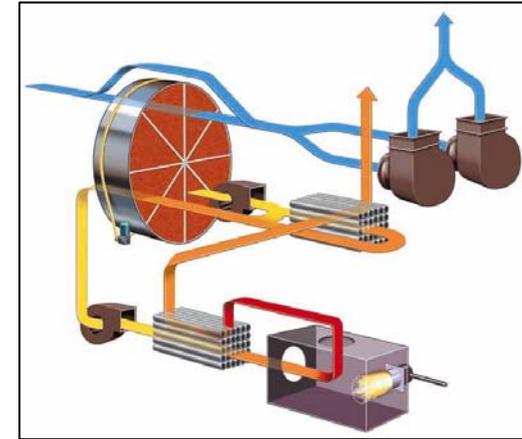




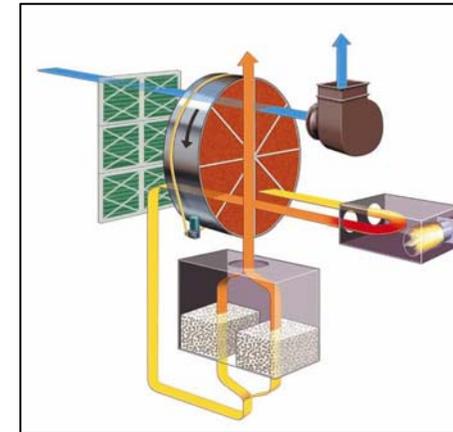
# 최종연소방식의 다양성: Hybrid System



**Rotor Concentrator with a  
Catalytic Oxidizer**

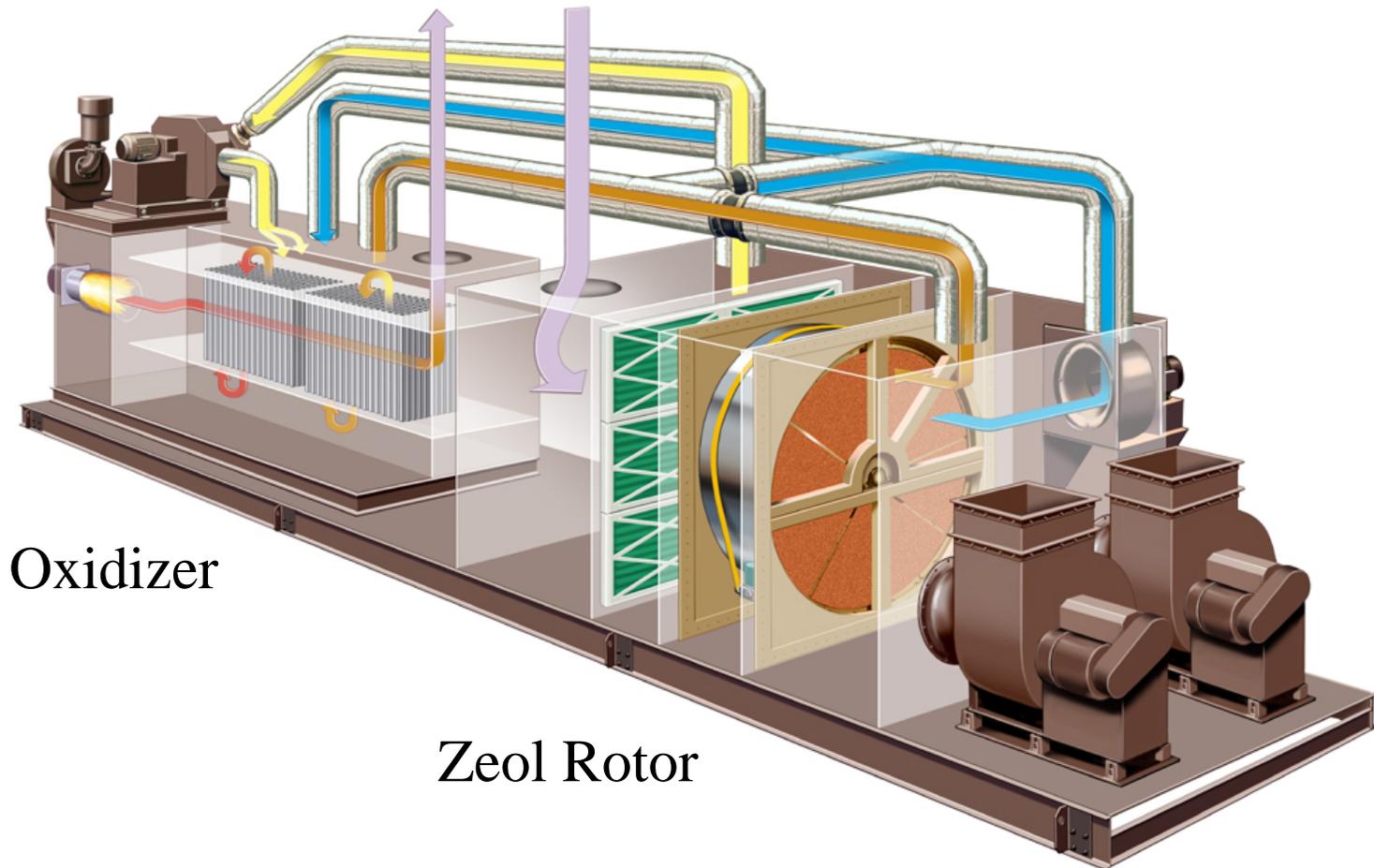


**Rotor Concentrator with a  
Thermal Oxidizer**



**Rotor Concentrator with  
a RTO**

# Integrated Rotor Concentrator System



# Zeol's Total Solution



계획 수립 및 현장, 성분 조사



공장조립



설치 및 시운전

법규준수



# ... and we are being recognized!



## Winners of the 2003 Preferred Quality Supplier Award

Of the thousands of suppliers who work with Intel, these 29 companies are being honored with Intel's 2003 Preferred Quality Supplier Award. This award recognizes their outstanding performance in exceeding Intel's supplier expectations. Congratulations!  
<http://supplier.intel.com/quality>



## Winners of the 2004 Preferred Quality Supplier Award

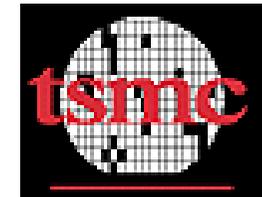
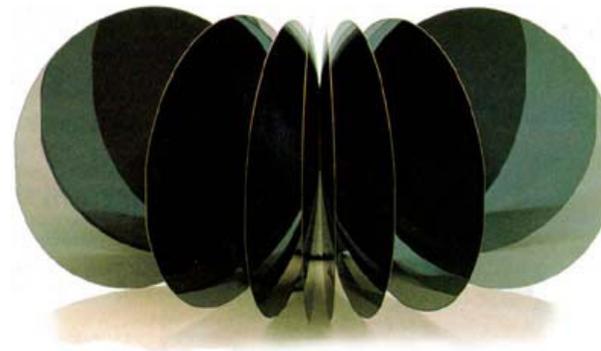
Of the thousands of suppliers who work with Intel, these 26 companies are being honored with Intel's 2004 Preferred Quality Supplier Award. This award recognizes their outstanding performance to Intel's supplier expectations. Congratulations!  
<http://supplier.intel.com/quality>



## Quality Deserves Recognition.

Congratulations to Intel's 2006 Preferred Quality Supplier Award Winners. Of the thousands of suppliers who work with Intel, these 44 companies are being recognized for their outstanding performance to Intel's supplier expectations. <http://supplier.intel.com/quality>

# Semiconductor Install Base



# Paint Finishing Install Base



DAIMLERCHRYSLER



**Donnelly**  
Advanced thinking.  
Human growth.



Bombardier  
Aerospace

**Gulfstream**  
A GENERAL DYNAMICS COMPANY



**VOLVO**



**HONDA**

**TOYOTA**

**Munters**



# Developing Segments/Applications

- Medical/Pharmaceutical



- Foam Building Products



- Printing/Coating



# Zeolol Production Facility Amesbury, MA, USA



# Large Production Capacity



# Installation Gallery:



# Analog Devices



# National Semiconductor



# Semiconductor Fab



# Honda of America



# Tiercon



# Silicon Systems



# 설계자료:

- 풍량 (NM<sup>3</sup>/hr)
- 건구온도 (deg C)
- 상대습도(%RH)
- Solvent List and composition:
  - Example
    - 50% Isopropanol
    - 25% Toluene
    - 25% Mineral Spirits
- Solvent Concentration (kg/hr) or (mg/NM)
- 요구성능 (%DRE)