

# IT'S ALL ABOUT THE AIR

CTP: OUR TECHNOLOGIES EMBODY CLEAN AND EFFICIENT PROCESSES WORLDWIDE



# CTP AIR POLLUTION CONTROL FOR INDUSTRIAL APPLICATIONS



>35 years of experience  
Headquarters: Graz, Austria  
Foundation: 1985

We all live here

### Clean Air

- Employees
- Residents
- Environment



Europe  
Far East  
America  
Australia  
Africa



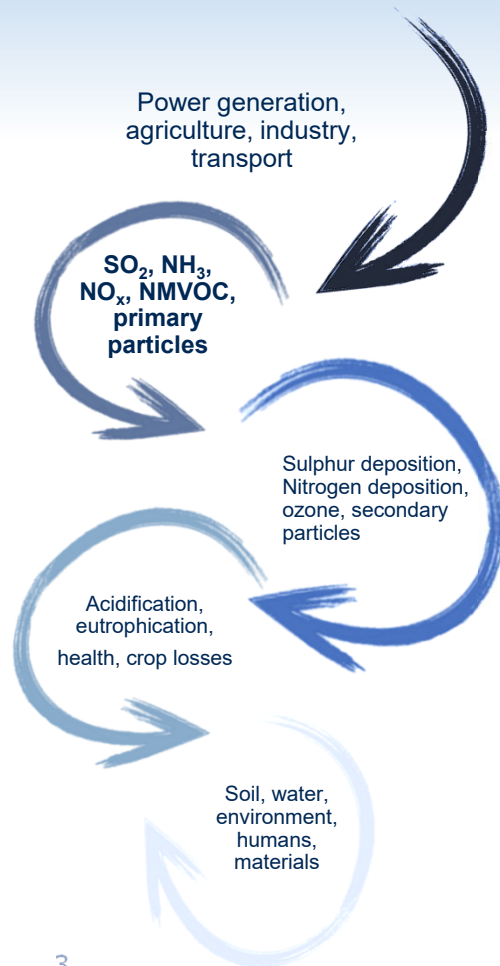
> 400 Systems  
220 Systems  
70 Systems  
8 Systems  
4 Systems



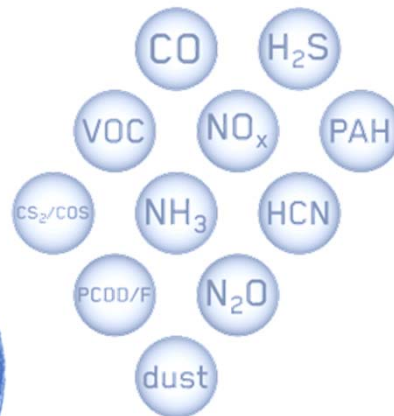
Catalytic and thermal-regenerative processes for exhaust air purification

Start to end: from the emission source to the stack

# INDUSTRIAL AIR POLLUTION CONTROL



## EMISSIONS



### Volatile Organic Compounds (VOC)

- Hazardous or carcinogenic compounds (e.g. benzene, PAH, PCDD/F)
- Greenhouse gases (e.g. CH<sub>4</sub>) and odorous substances (e.g. mercaptans)

### Inorganic, gaseous pollutants

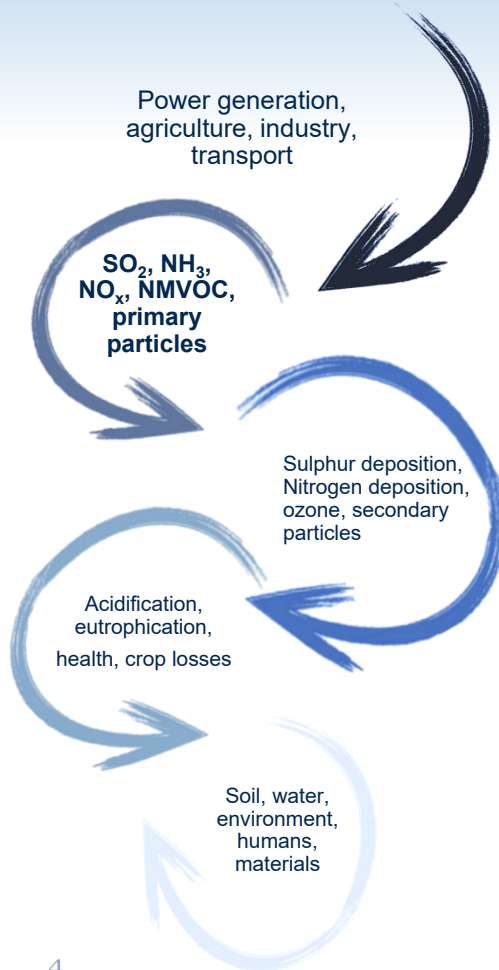
- Harmful substances (e.g. HCl, SO<sub>2</sub>/SO<sub>3</sub>, CO)
- Greenhouse gases (CO<sub>2</sub>, NO<sub>x</sub>)
- Odorous substances

### Liquid and solid compounds

- Aerosols (e.g. tar components)
- Dust

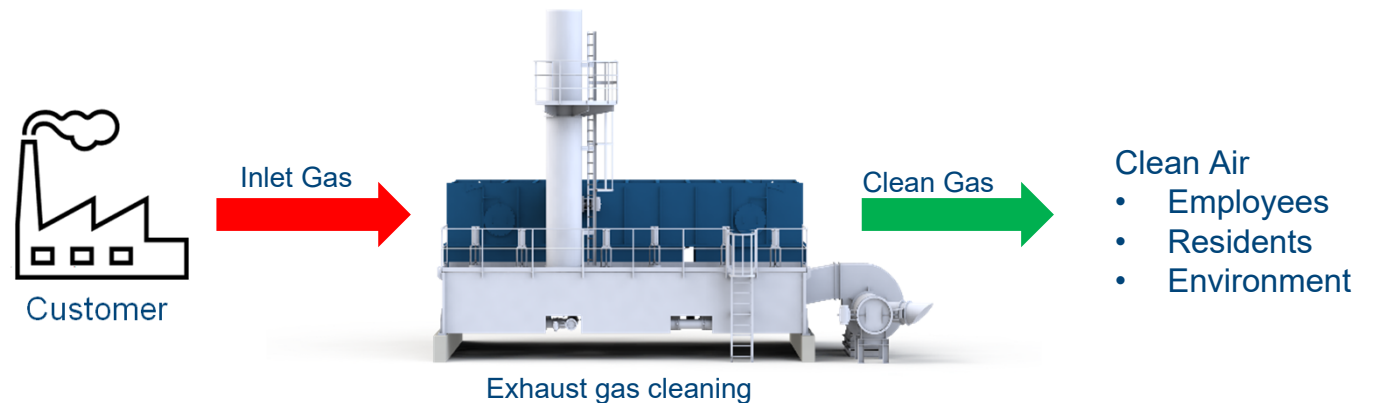


# INDUSTRIAL AIR POLLUTION CONTROL

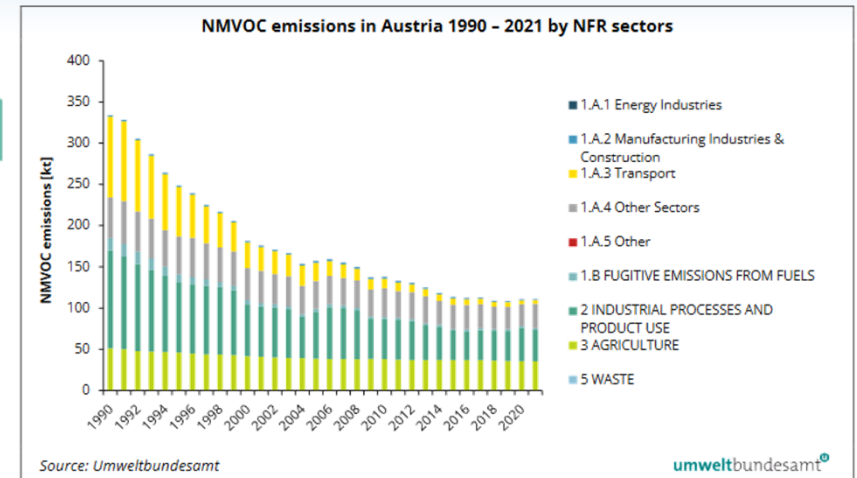


- **Resolution:** Production process exceeds pollutant limits
- **Requirement:** Compliance with legally prescribed limit values
- **Challenge:** Economic solution for compliance with limit values

- Increase in energy efficiency
- Cost & resource saving
- Use of renewable energy sources



# MANIFOLDNESS



- Consumer goods
- Electronics and electrical industry
- Energy and raw material extraction
- Wood and chipboard
- Metal and mining
- Oil and gas



# CTP'S TECHNOLOGIES



## THERMAL SYSTEMS

### RTO: Regenerative Thermal Oxidation

- Oxidation of harmful compounds without residue
- Recovering the oxidation energy and heater energy

### TO: Direct Thermal Oxidation

- Direct Oxidation of several waste gas streams, with concentrations from lean to explosive via injection into the combustion chamber



## CATALYTIC SYSTEMS

### CO: Catalytic Oxidation

- Waste gases are heated in the presence of special CTP oxidation catalysts which are responsible for the high cleaning efficiency

### RCO: Regenerative Catalytic Oxidation

- low reaction temperature achievable with catalysts and the outstanding thermal efficiency



## HYBRID SYSTEMS

### RTO & TO

Combinations with

- Selective non-catalytic reduction technology **SNCR**
- Selective catalytic reduction **SCR**



## SORPTIVE SYSTEMS

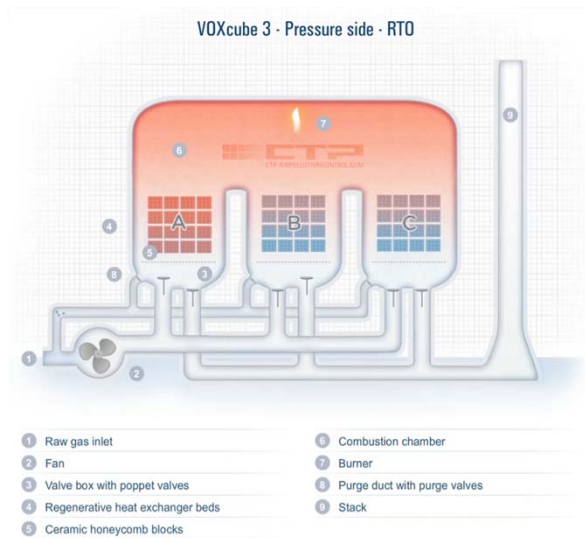
### Rotary Adsorbers, fixed beds

- large waste gas volumes
- low contaminant concentrations
- concentration peaks or batch processing
- the removal of inorganic components

# CTP'S TECHNOLOGIES

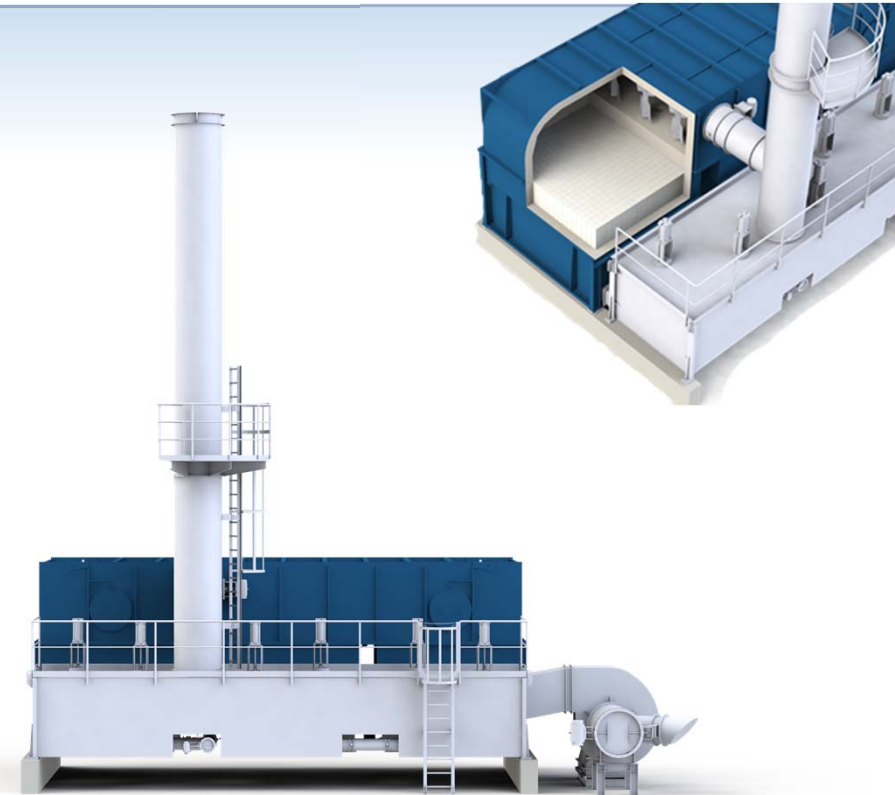


## THERMAL SYSTEMS



### Regenerative Thermal Oxidation RTO

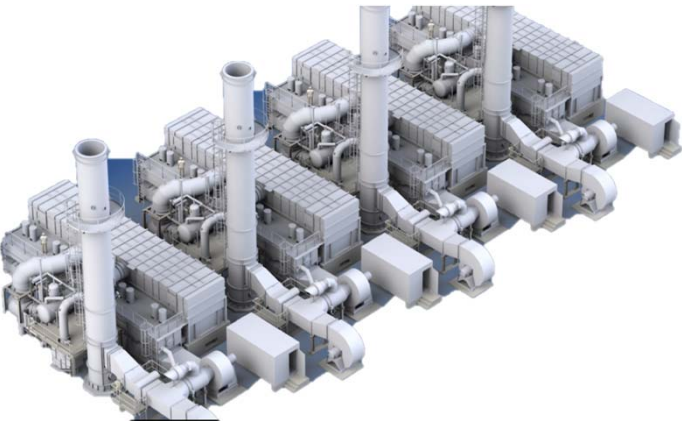
- High temperatures to thermally decompose pollutants
- Heat recovery → Energy efficiency
- 125 000 Nm<sup>3</sup>/h
- -20 – 350°C
- Different heating options (natural gas, multifuel burner, electric)







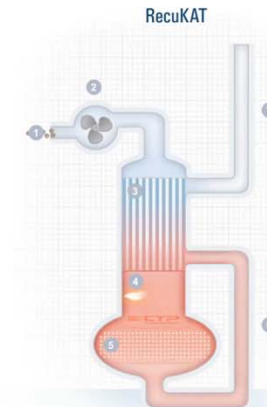
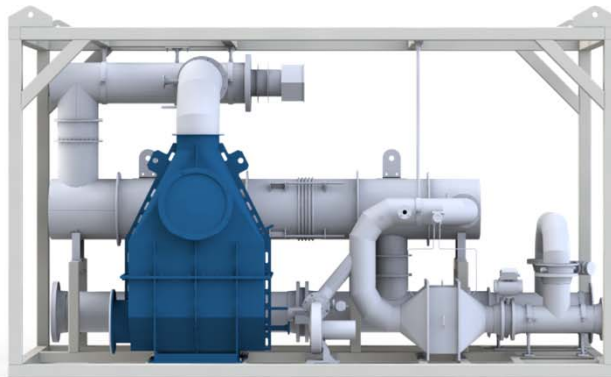
  
CTP-AIRPOLLUTIONCONTROL.COM





# CTP'S TECHNOLOGIES

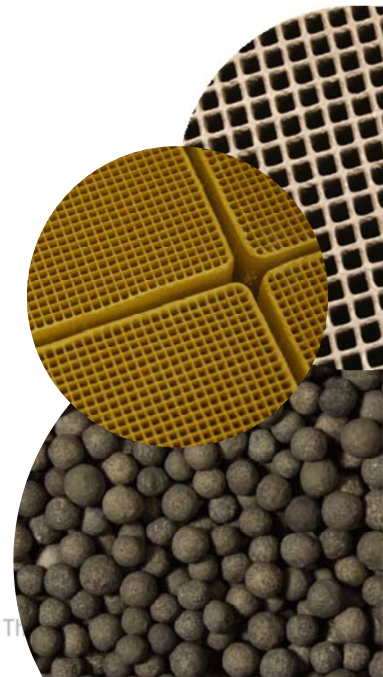
## CATALYTIC SYSTEMS



- |                               |                   |
|-------------------------------|-------------------|
| 1 Rohgaseintritt              | 5 Katalysatorbett |
| 2 Gebläse                     | 6 Reingas         |
| 3 Rekuperativer Wärmetauscher | 7 Kamin           |
| 4 Brenner                     |                   |

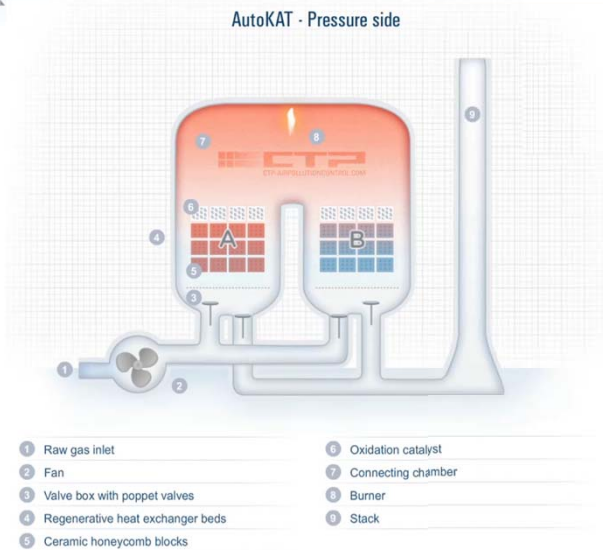
### RECUKAT Recuperative CO

- Maximum cleaning efficiency
- CTP's own high performance, custom-made precious metal or metal oxide catalysts
- Constant high performance, also for oxygen deficient gases



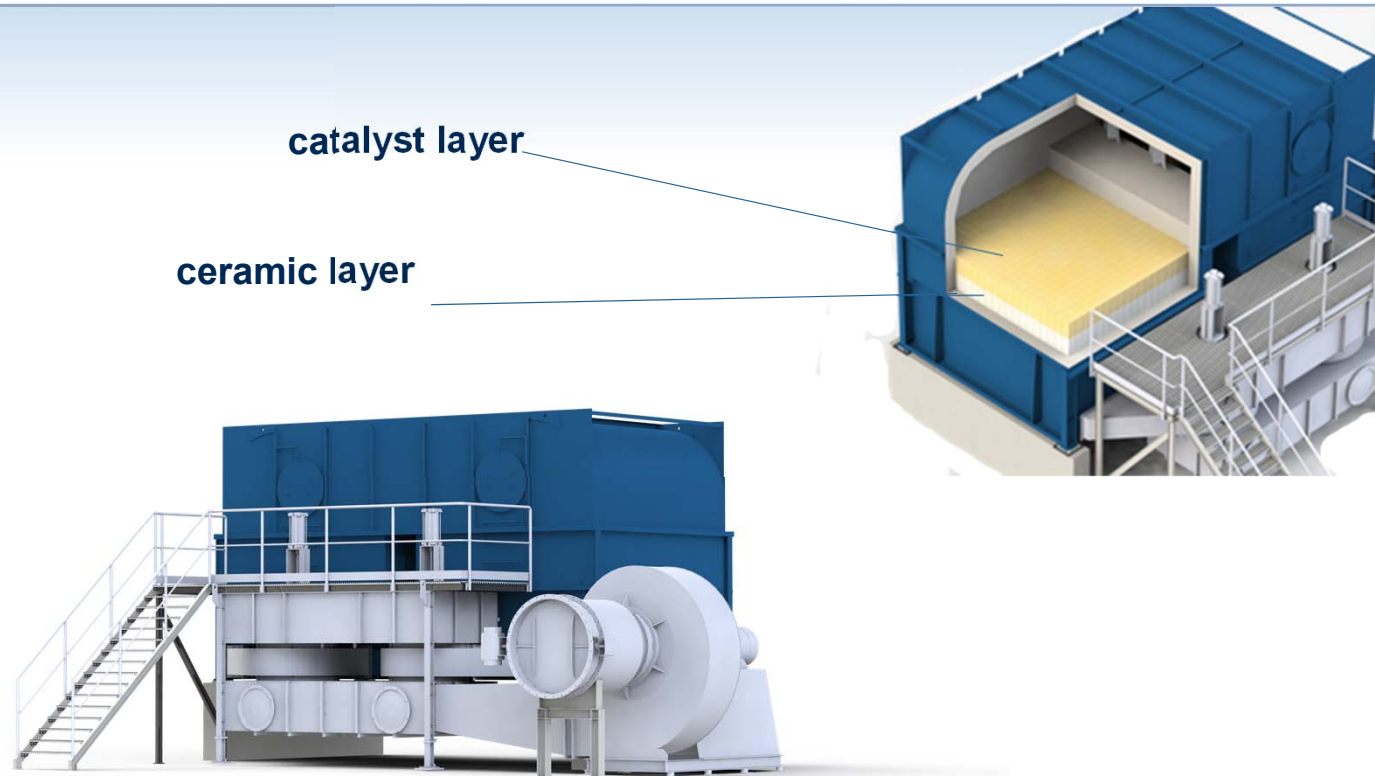
# CTP'S TECHNOLOGIES

## CATALYTIC SYSTEMS



### AUTOKAT regenerative CO

- Highest thermal efficiency
- Constant high cleaning efficiency
- Energy saving
- Easy access to catalyst modules
- Low footprint



Combination of the advantages of regenerative thermal oxidation with those of catalytic oxidation.

Existing RTO systems can be upgraded to an AutoKAT.

## IDEAL CASE

- Commissioning + standard maintenance intervals



High complexity & manifoldness  
High degree of different pollutants & substances

Measurement campaigns  
Pilot runs and testing



Assessment of process conditions

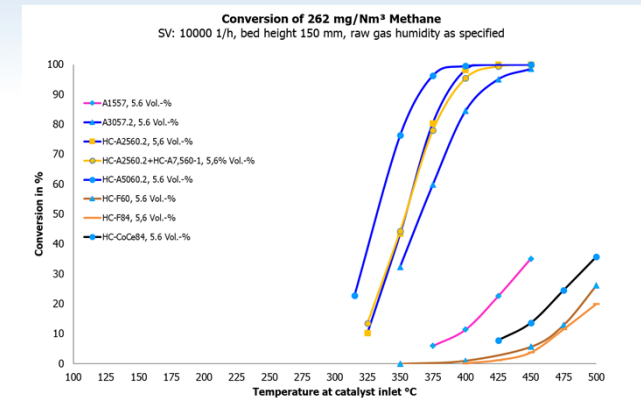
Customer support by service technicians





# DEVELOPMENT & INNOVATION

- Development
  - Catalysts
  - CH<sub>4</sub>, CO<sub>2</sub> (greenhouse gases)
  - Energy transition
  - Circular economy
- Pilot units
  - Customer projects
  - analyses



# WORK ENVIRONMENT

- Problem-solving skills
- Customer focus
- High team spirit
- Organizational talent
- Autonomy & responsibility
- Language skills (international customers)
- Travel opportunities



*130 maintenance calls / year*  
*26 countries*



# JOBS

**Project engineer - mechanical project handling** (process engineering/ plant engineering) (m/f/d)

**Project engineer automation / electrical engineering** (m/f/d)

**Commissioning & service technician** (Electrical / Automation) (m/f/d)

**Design engineer** (m/f/d)



<https://www.ctp-airpollutioncontrol.com/ctp/jobs>

11/6/2023