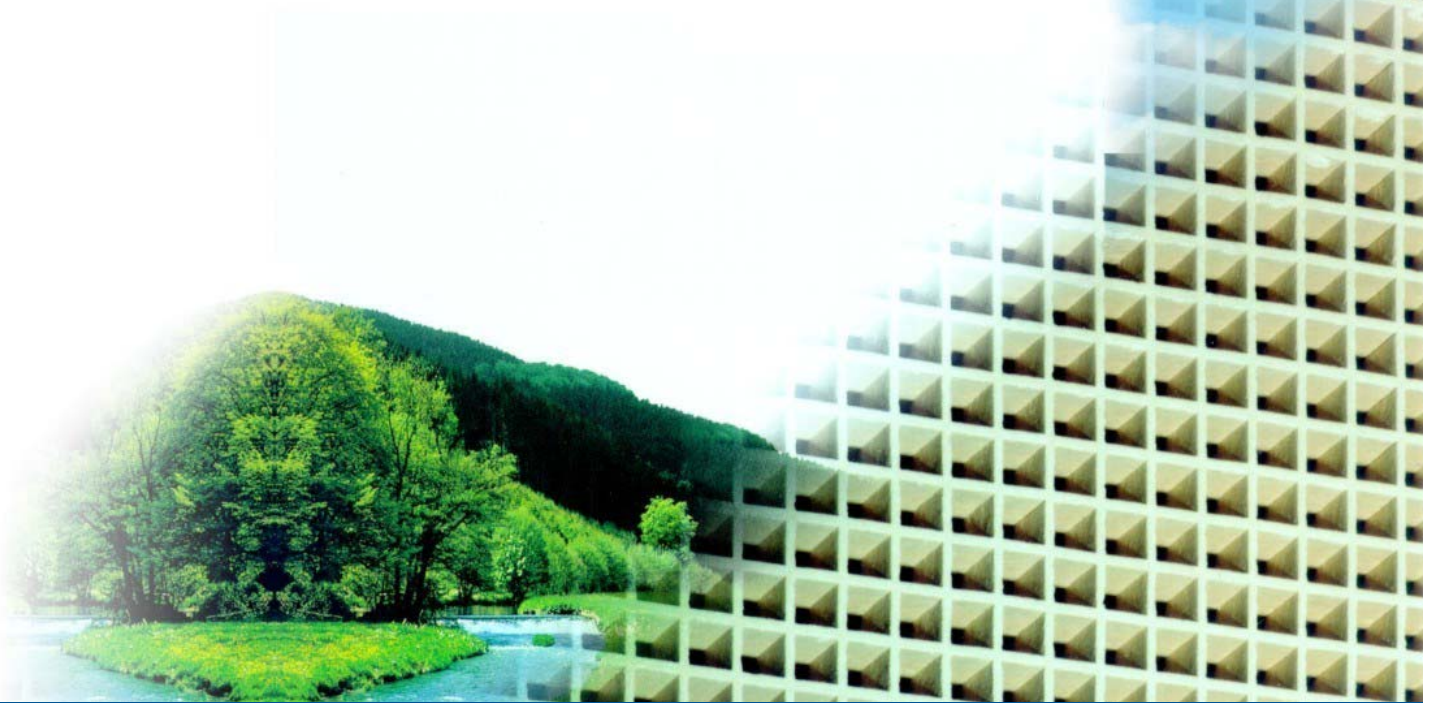


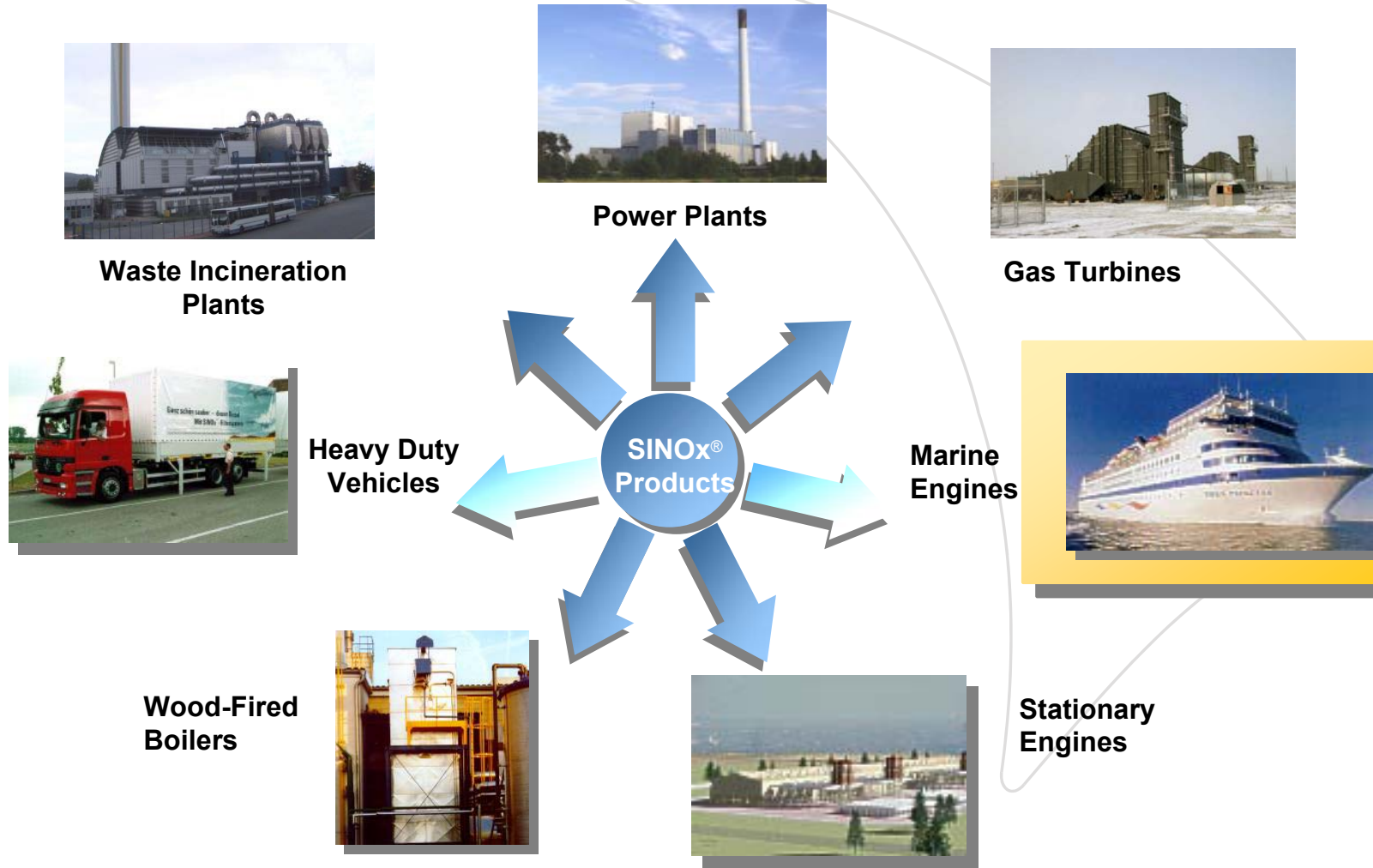
Stationary and Marine SCR Applications



**SCR - The Most Effective
NOx Reduction Technology**

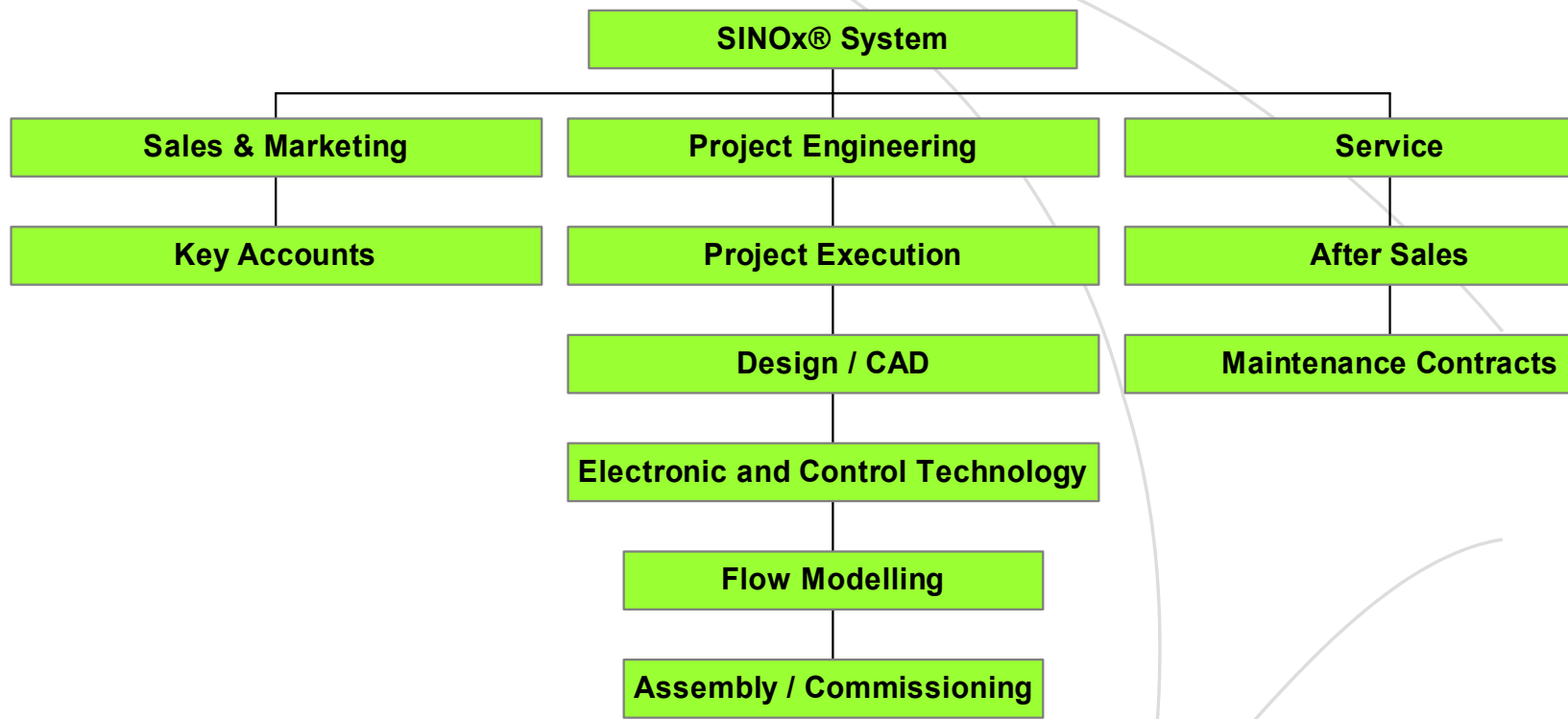
SINOx[®] SCR

Competence of Applications from Power Plants to Marine



SINOx[®] SCR System

Your Environmental Challenge - Our Emissions Solution



»» SINOx[®] Emissions Control

SINOx[®] SCR System



Your Environmental Challenge - Our Emissions Solution

**Development of Solutions for Emission Reduction with OEM
Product, R&D, Test and Service - Everything from One Source**

Products

- SINOx[®] SCR-Catalyst
- Oxidation Catalyst and DPF
- Catalyst Design
- Steel Work (reactor, mixing duct, mixer) incl. System Design
- SINOx[®] Control Unit
- SINOx[®] Dosing System
- SINOx[®] Exhaust Gas Analyser
- Sound Attenuation

R&D

- System Integration
- Catalyst Development
- Software / Algorithms
- CFD - Calculations
- Fluent 6.0
- CAD Design
- AutoCad and Pro Eng

Test

- Laboratory
- Exhaust Gas Analysis
- Catalyst Analysis
- Flow Lab
- Component Test Benches

Service

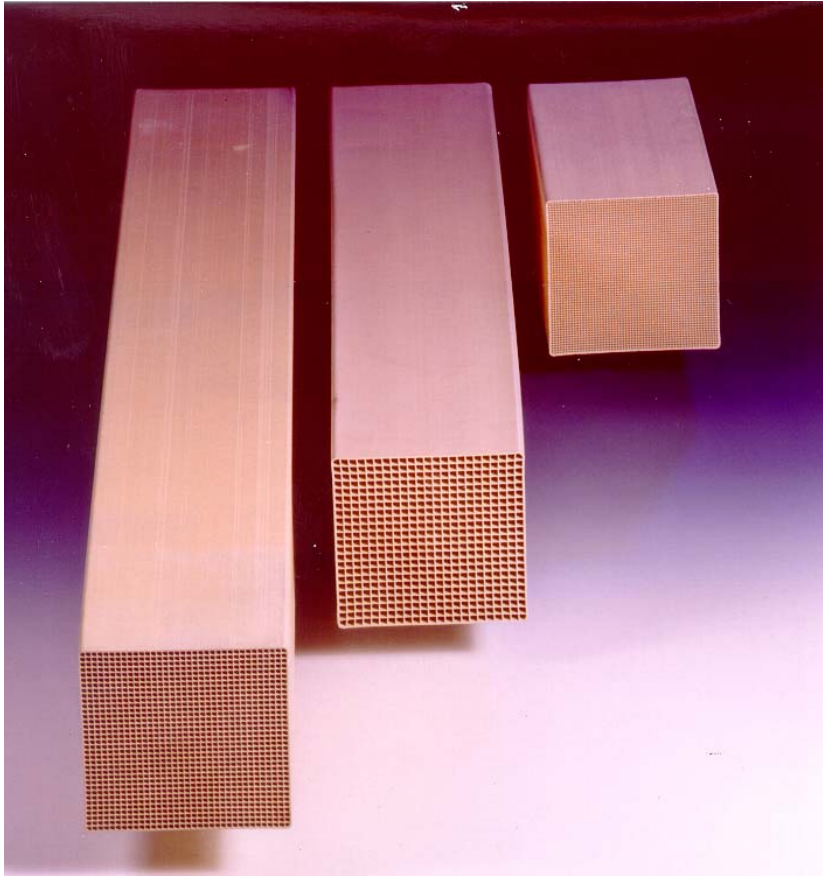
- Project Management
- Supplier Interface Management
- System Training
- Maintenance / Service

Status: Marine projects with more than 100 SCR systems and approx. 400 MW of engine power world-wide

Stationary projects with more than 300 SCR systems and over 1,000 MW of engine power world-wide



SINOx[®] SCR System Special Types for Diverse Applications

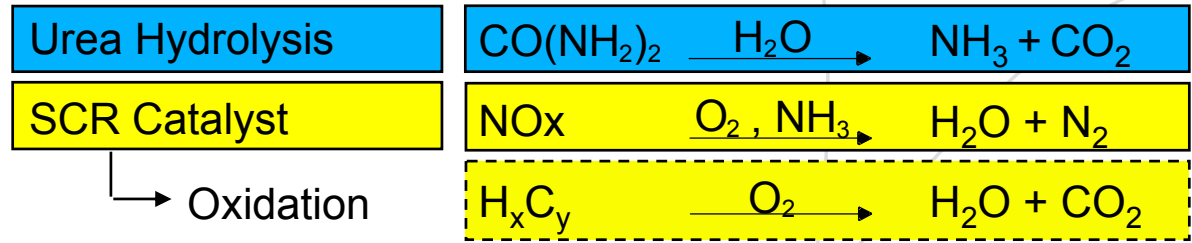
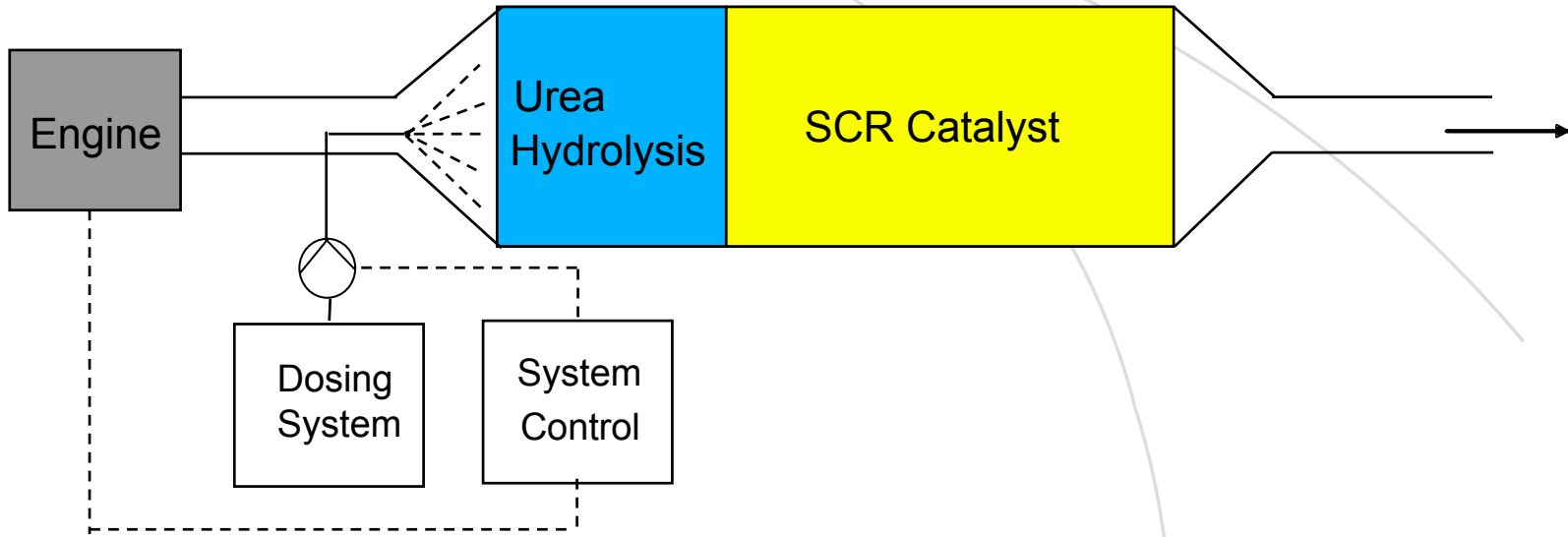


SINOx[®] Emissions Control

SINOx[®] SCR System

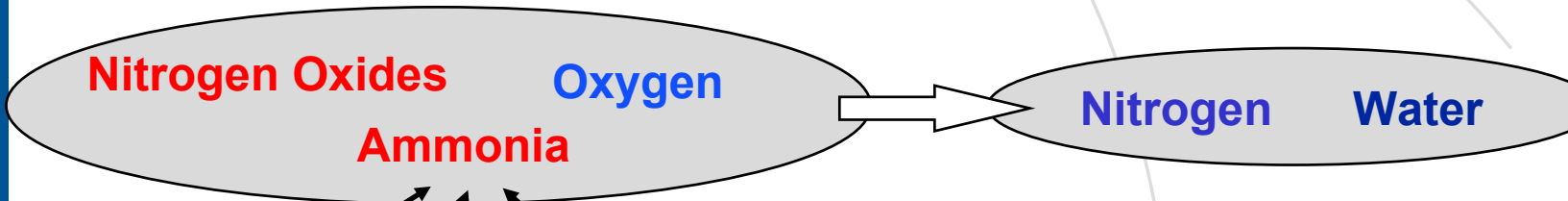


Functional Principle of the Urea-SCR Technology



Functional Principle of the Urea-SCR Technology

Selective Catalytic Reduction (SCR)



Ammonia
(gaseous)

Ammonia as
aqueous solution

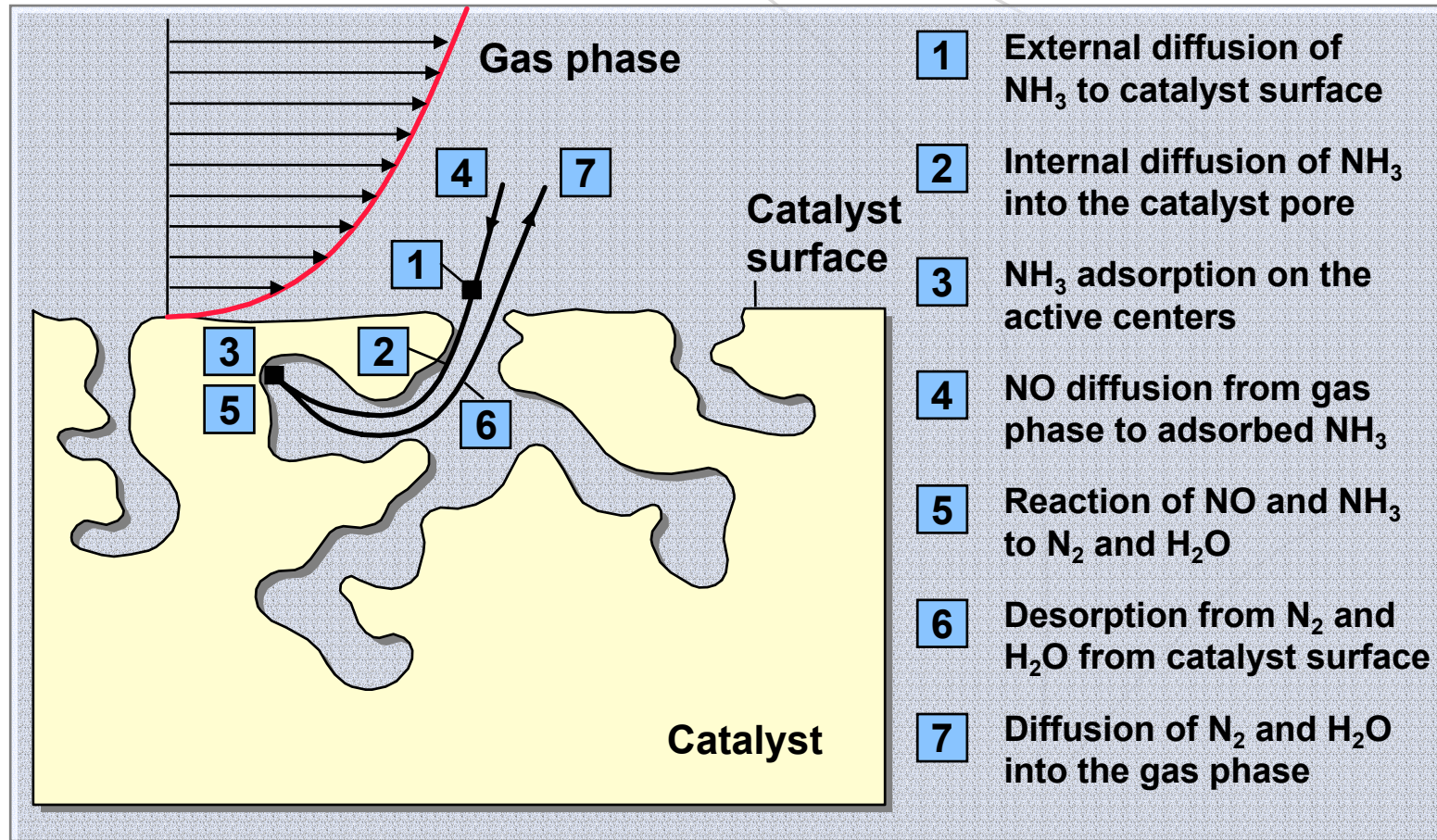
Urea as
aqueous solution

Urea as
granules



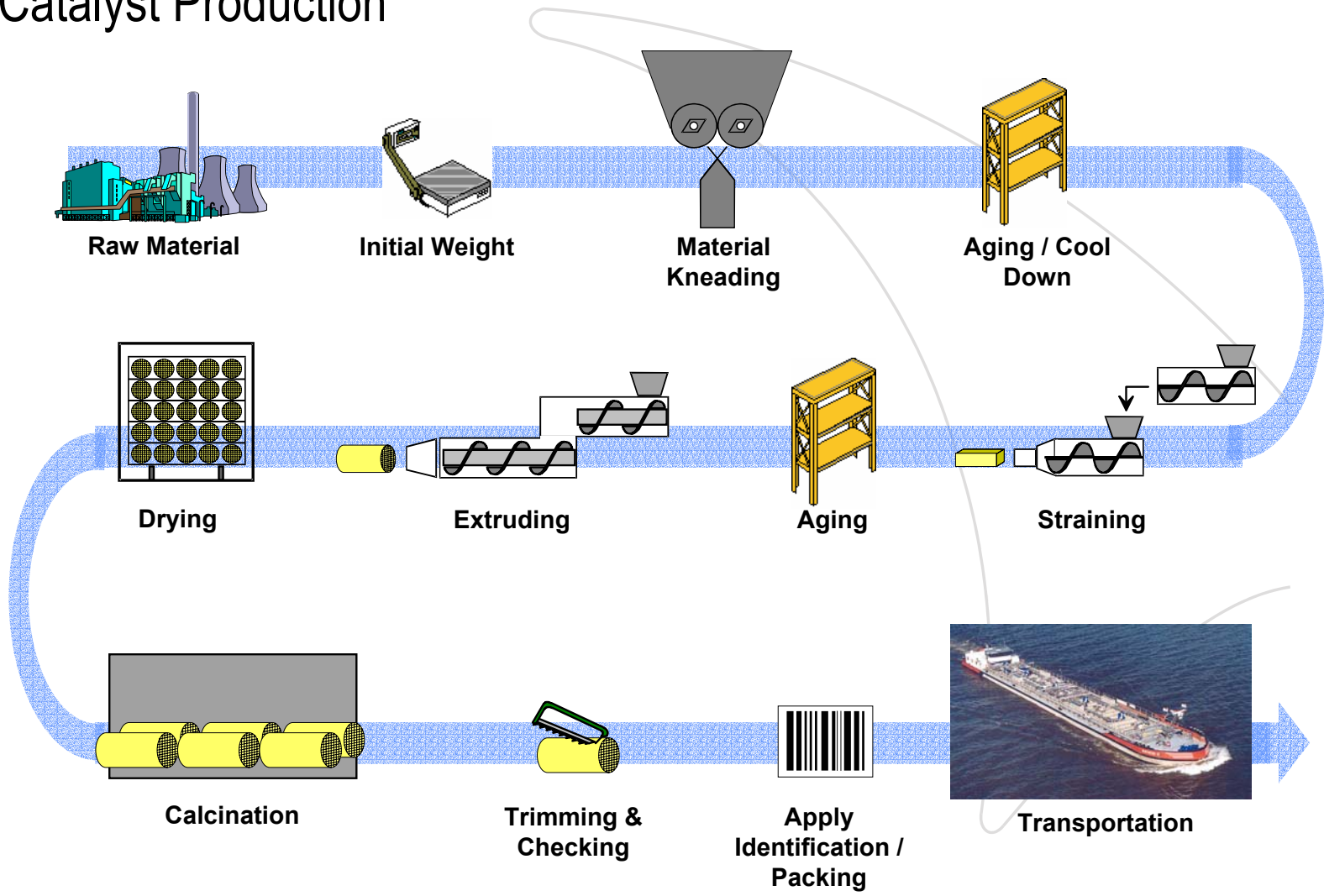
SINOx[®] SCR System

Functional Principle of the Urea-SCR Technology



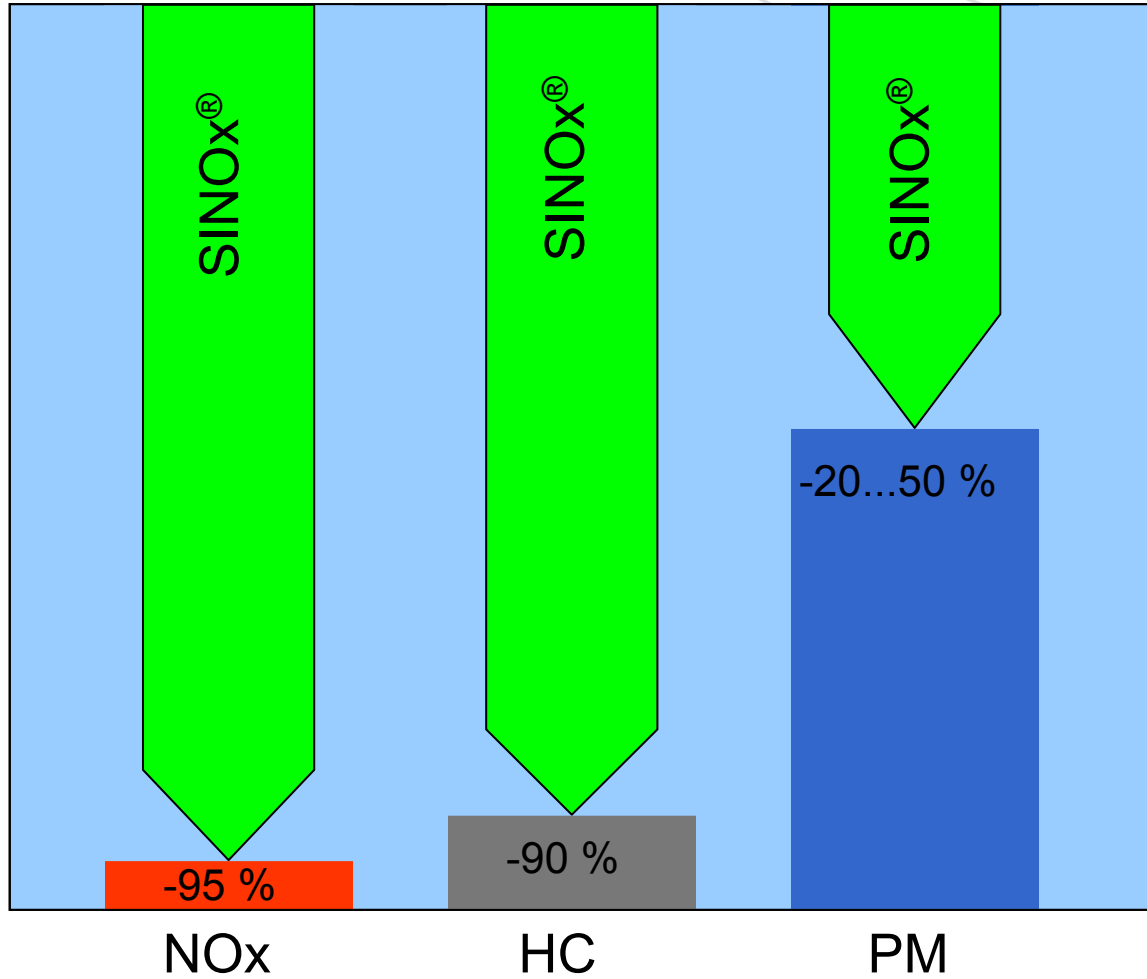
SINOx[®] Emissions Control

SINOx[®] SCR System Catalyst Production



»» SINOx[®] Emissions Control

SINOx[®] SCR System SINOx[®] Catalyst and its Potentials



SINOx[®] Emissions Control

SINOx[®] SCR System

SINOx[®] Catalyst and its Potentials

Performance	NOx Reduction	90 - 99 % @ constant load
	HC/CO Reduction	80 - 90 % @ constant load
	Soot Reduction	30 - 40 % @ constant load
	Noise Reduction	30 - 35 dB(A)
Operation	Temperature Span	250 - 510 °C
	Fuel	LFO / MGO / MDO / HFO
Installation	Weight	Silencer +30 - 60 %
	Volume	Silencer +/- 20 %
Consumables	Urea Solution (40%)	approx. 15 l/h (per MW) @ 90% NOx reduction
	Catalyst Life Span	10,000 - 40,000 h

