



PTA Technology

2nd International Moscow Conference “PET 2006”
February 15, 2006
Moscow

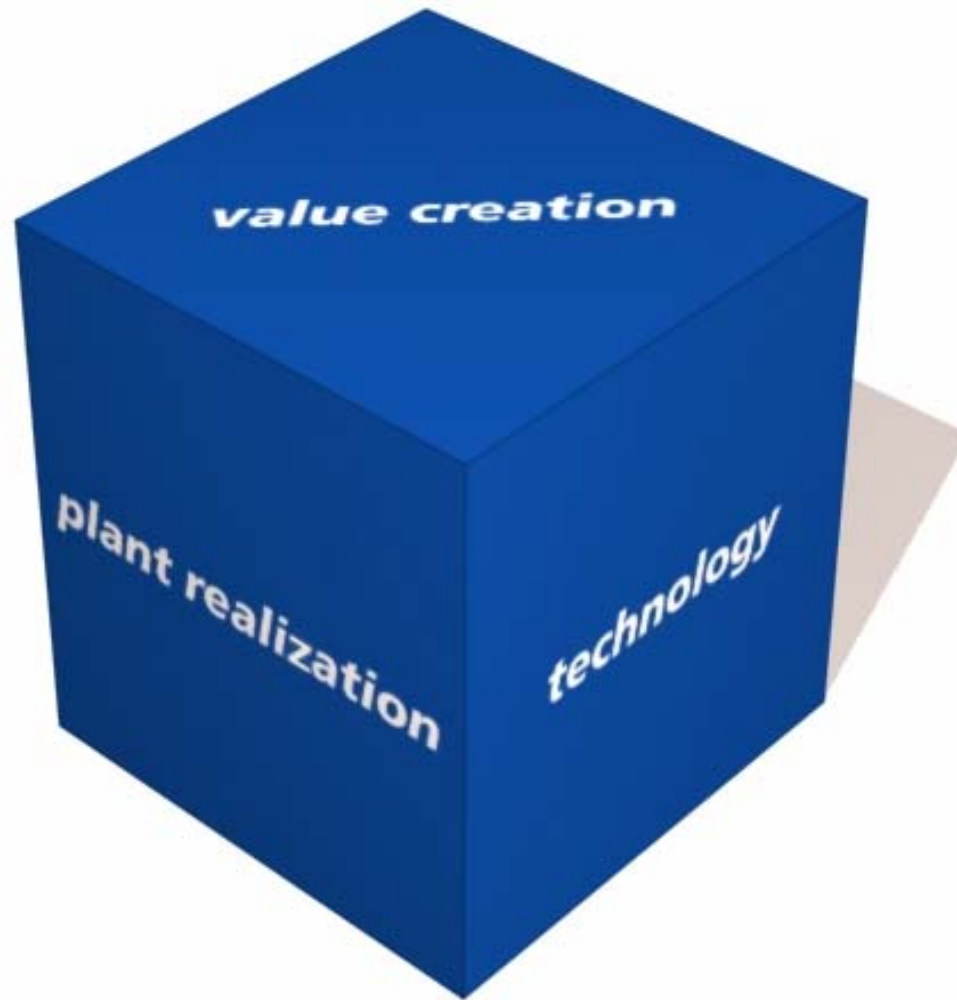
Dr. Ulrich A. Berger, Director Technologies - Zimmer AG

The Company

- ▶ Founded 1952 by Hans J. Zimmer
- ▶ Since 1992 affiliate of GEA Group, Bochum
- ▶ Experience of more than 800 plants in 26 countries
- ▶ International partners e.g. Dow, Shell, Husky, Kvaerner, Stadri, CEPSA, Sinopec, Bechtel, SNC Lavalin, Reliance...



Product Portfolio



CEPSA High Lights

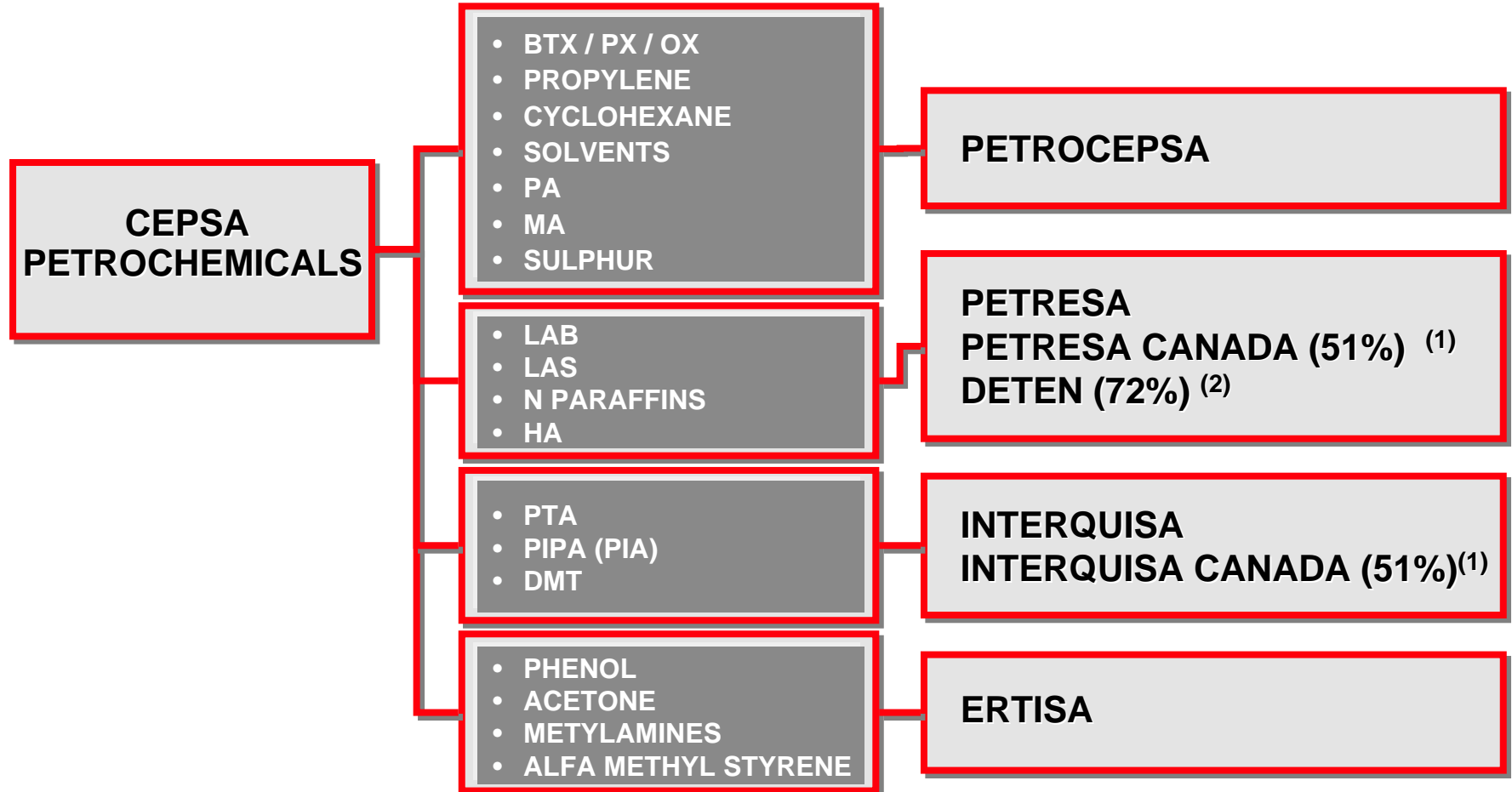
CEPSA is a diversified energy and oil Spanish group with activities in:

- ➔ Oil and gas exploration and production
- ➔ Refining and marketing
- ➔ Petrochemicals
- ➔ Gas and Electricity

CEPSA figures in 2004:

■ Turnover	€	14,7	billions
■ EBITDA	€	1,3	billions
■ Net profit	€	650	millions
■ Refining capacity		22,2	million tons
■ Product sales		28,9	million tons
■ Employees		10.534	

CEPSA Petrochemical Area

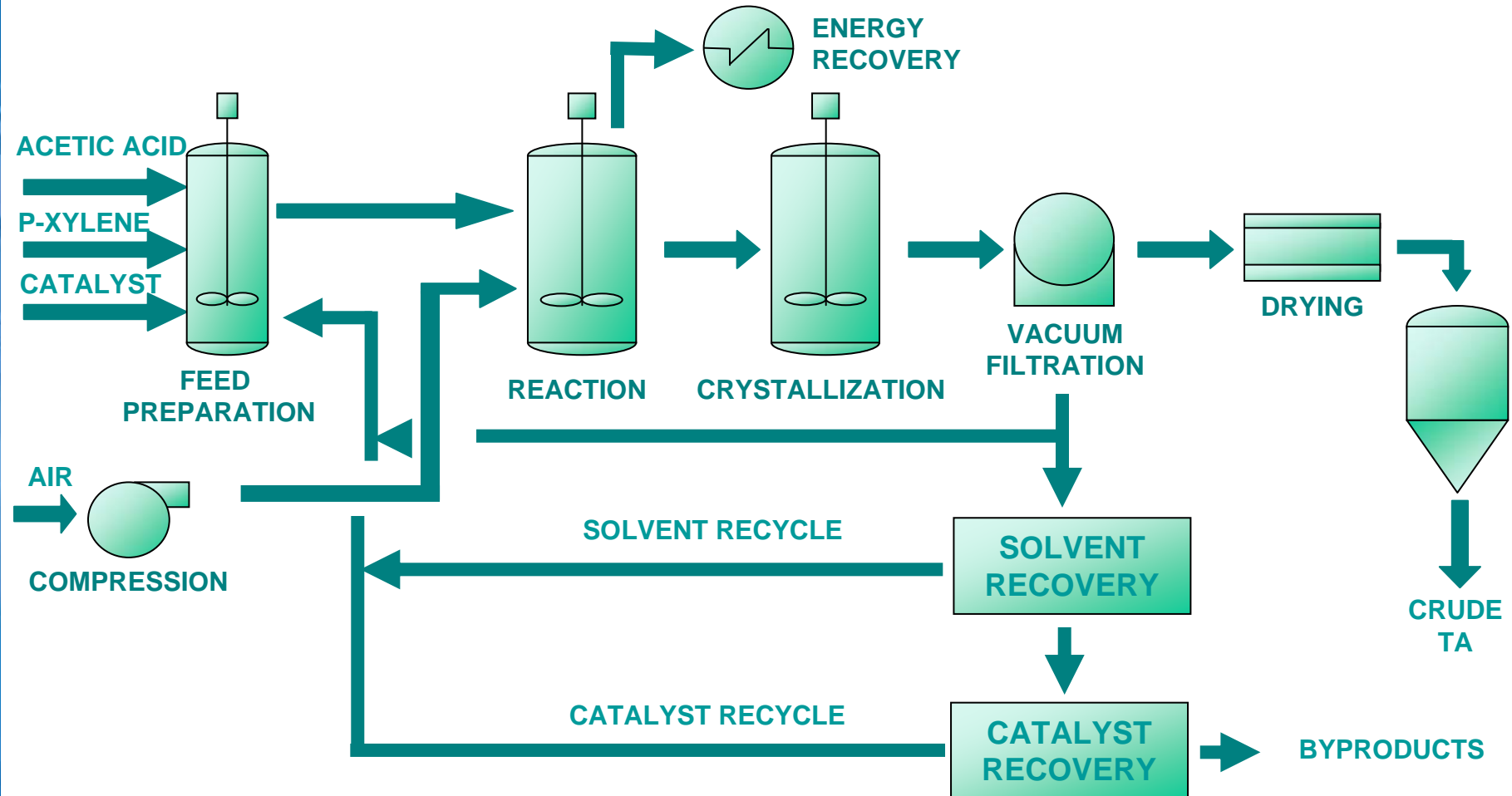


1) SOCIÉTÉ GÉNÉRALE DE FINANCEMENT (QUÉBEC GOVERNMENT) 49%
 2) PETROQUISA (PETROBRAS) 28%

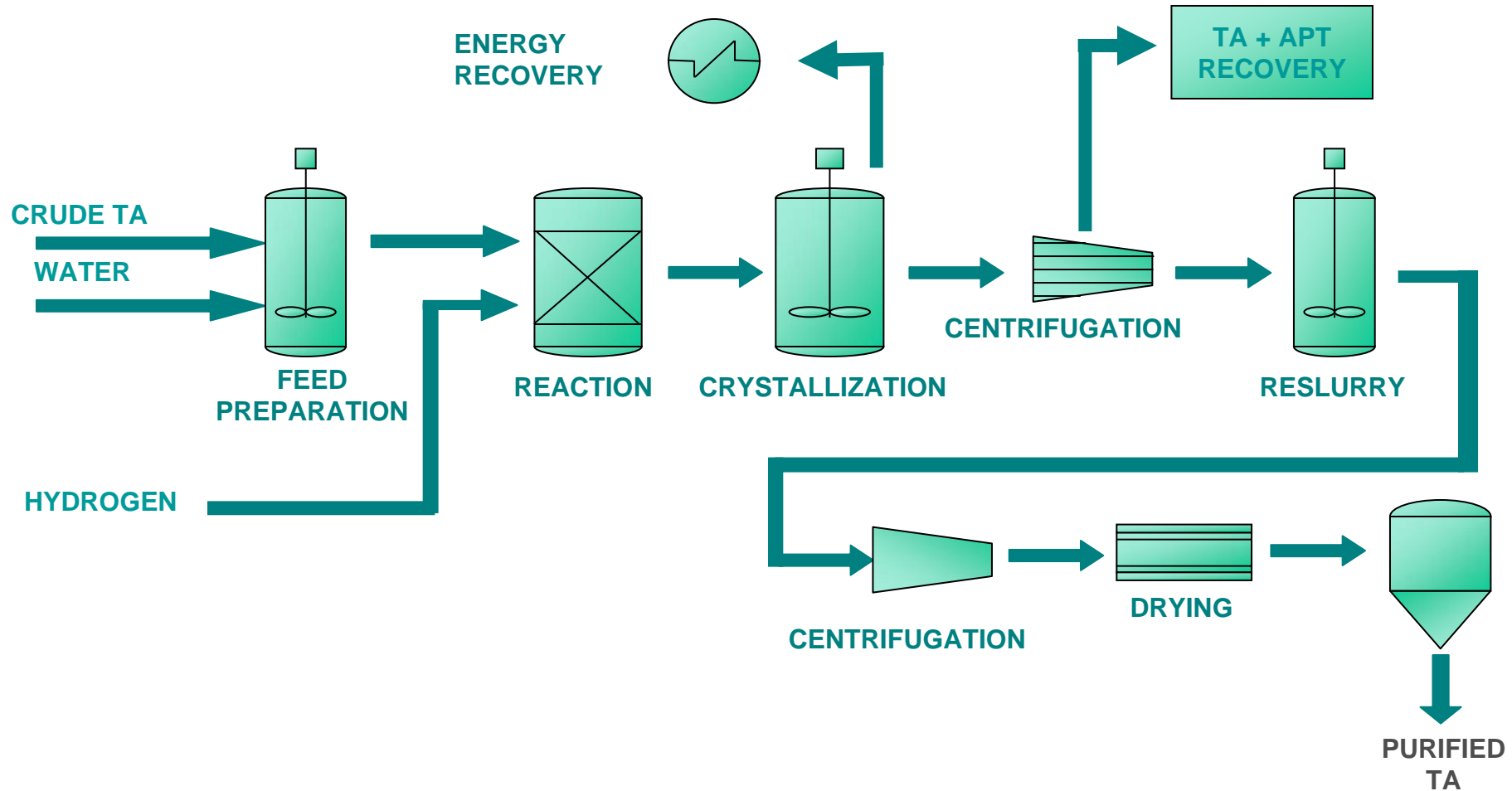
INTERQUISA

- ✚ Company established in 1972 as a 50/50 joint venture between Amoco and CEPSA
- ✚ Interquisa starts operation in 1976
- ✚ In 1987 CEPSA acquires Amoco's share
- ✚ Production facilities in San Roque (Spain) and Montreal (Canada)
- ✚ Production Capacity:
 - PTA 1.300 KMT
 - PIPA 70 KMT
 - DMT 90 KMT
- ✚ Employees 560
- ✚ Turnover 575 M €

PTA Technology - Oxidation Unit (TA Unit)



PTA Technology - Purification Unit (PTA Unit)



PTA Technology

► References



Interquisa Canada
(600.000 MT/y)



Interquisa San Roque
(2 x 350.000 MT/y)

PTA Technology Licensing

Concept

- ▶ Grant rights to use technology
- ▶ Basic design package (Black Book)
- ▶ Process guarantees
- ▶ Training
- ▶ Commissioning and startup assistance
- ▶ Continuing licensee support

PTA Technology Cooperation

Agreement for long term relationship (January 2005):

- ▶ Proven technology for world scale PTA plant capacities providing highest product qualities
- ▶ Ongoing development program to fulfil future market requirements
- ▶ Highest competence in technology and plant engineering for the entire Polyester value chain, from raw -material to chip, preform or fiber
- ▶ Technical Service and operational support based on Interquisa's long term production experience

PTA Technology Cooperation

- ▶ Market experience of INTERQUISA
- ▶ Engineering and project management capabilities of Zimmer
- ▶ Operational experience of Interquisa
- ▶ Capability to offer integrated PTA/PET complexes
- ▶ Complex and flexible service offers
- ▶ Support for raw materials procurement and product off take

PTA Technology Development

Target: To become leading technology provider for PTA

- ▶ Reduction of Capex
- ▶ Reduction of Opex
- ▶ Create customer's value added
- ▶ Achieve and maintain long-term competitive position

PTA Technology Development

3 Step approach:

- ▶ Know-how transfer (completed)
- ▶ Value engineering (On going process)
 - Optimization of existing plant design to reduce costs
- ▶ Continuous Development Program
 - Achieve benchmark in short term (Target 2006)
 - Provide next generation technologies (Target 2006/07)

PTA Technology Highlights

Capacities 500, 600, 750 ktons per year

- ▶ Single oxidation reactor
- ▶ Azeotropic distillation for optimal dehydration
- ▶ Advanced catalyst recovery
- ▶ Tailor made energy recovery concept
- ▶

Expected Raw Materials and Energy Consumption Figures

Paraxylene consumption:	0,657	MT/MT PTA
Acetic acid consumption:	36	kg/MT PTA
Cobalt (metal):	0,03	kg/MT PTA
Manganese (metal):	0,05	kg/MT PTA
HBr (100 %):	0,2	kg/MT PTA
Power:	93	kwh/MTPTA
Fuel:	1,9	MBTU/MT PTA

The background of the image is a detailed architectural floor plan or technical drawing. It features a grid of lines, various geometric shapes representing rooms and corridors, and some faint text labels such as 'CANTINA' and 'OFFICE'. The drawing is rendered in a light gray color, providing a technical and professional context for the logo.

INTERQUISA *Zimmer*