

Agentschap NL
Ministerie van Economische Zaken

Process Intensification Network NL

Welcome
at the Member meeting
17-6-10

Henk Akse - Chairman
Frank van der Pas - Agentschap NL

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Facts

Objective PIN NL
Develop and disseminate knowledge about Process Intensification in Dutch Process Industries

Start
Spring 1998 (Feijenoord stadion)

Member companies
33

Focus of activities
PI Quick Scans in Chemicals, Food and Pharma 2007 - present

Milestone
European PI Roadmap beginning 2008

Current status
First series PI Quick Scans continuing (3 in May 2010)
Second series "In Depth" Scans just started (LyondellBasell Maasvlakte PO-11)

Next PIN NL meeting
Wednesday November 10th 2010

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Goodies from PI Quick Scan?

Company	Short term	Medium/ long term
ABB Lummus Heat Transfer BV	Direct suggestions for PI equipment implementation @attractive pay back times	Process redesign: grassroot / hybrid
Agentschap NL		Substantially less capital investment @equal output
AkerKvaerner		Substantially higher energy efficiency
Akzo Nobel		Substantially smaller footprint
BioMCN		
Bodac Process Technology		
Delft University of Technology		
DMV International		
Dow Chemicals Terneuzen		
DSM		
Eastman Chemical Company		
ECN		
House of Innovation		
Huntsman		
Hygear		
IdEActive BV		
Klaren B.V.		
Process Design Centre		
PFW Aroma chemicals b.v.		
Procede Group BV		
Process Design Center		
Serenix		
Shell Exploration & Production		
Shell Global Solutions International BV		
Shell International Chemicals		
Shell Nederland Chemie		
TNO		
Traxxys		
TU Delft		
TU Eindhoven		
Universiteit Twente		
Universiteit Wageningen		
Zeton BV		

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PIN NL meetings 2004 - present

2008
05-06-2008: PIN-NL meeting locatie Rijnmond (voorafgaand aan Masterclass PI van Deltalinqs)

2007
20-11-2007: 10 jarige jubileumbijeenkomst PIN-NL bij Shell Research in Amsterdam:
Deze bijeenkomst richtte zich op de energieaspecten van PI en op de voortgang met de 'roadmap'.
02-05-2007: PIN-NL meeting Huntsman Rozenburg - [agenda](#)
Februari 2007: [Interview](#) met prof.dr.ir. Andrzej Stankiewicz:
"In de chemische industrie zijn nog tientallen procenten energiebesparing mogelijk"

2006
23-11-2006: PIN-NL Meeting TU Delft - [agenda](#)
23-5-2006: PIN-NL Meeting Akzo Nobel

2005
25-10-2005: PIN-NL Meeting tijdens NPS-5 - [agenda](#)
26-09-2005: Introductie cursus Procesintensificatie - [verslag](#)
06-04-2005: PIN-NL Meeting Zeton, - [agenda](#)

2004
26-10-2004: PIN-NL Meeting tijdens NPS-4 - [agenda](#)

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PIN NL member companies

1 ABB Lummus Heat Transfer BV	18 Process Design Centre
2 Agentschap NL	19 PFW Aroma chemicals b.v.
3 AkerKvaerner	20 Procede Group BV
4 Akzo Nobel	21 Process Design Center
5 BioMCN	22 Serenix
6 Bodac Process Technology	23 Shell Exploration & Production
7 Delft University of Technology	24 Shell Global Solutions International BV
8 DMV International	25 Shell International Chemicals
9 Dow Chemicals Terneuzen	26 Shell Nederland Chemie
10 DSM	27 TNO
11 Eastman Chemical Company	28 Traxxys
12 ECN	29 TU Delft
13 House of Innovation	30 TU Eindhoven
14 Huntsman	31 Universiteit Twente
15 Hygear	32 Universiteit Wageningen
16 IdEActive BV	33 Zeton BV
17 Klaren B.V.	

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PI scanned companies 2007 - present

Air Liquide; Terneuzen	Kollo Silicon Carbide, Farmsum
AkzoNobel MCA; Delfzijl	Linde; IJmuiden
AkzoNobel Functionaal Chemicals BV; Herkenbosch	Lyondell; Botlek
Albemarle; Amsterdam	Lyondell; Maasvlakte
Chemtura Netherlands B.V. Amsterdam	Meneba; Weert
Cindu chemicals B.V.; Uithoorn	NedMag; Veendam
CP Kelco; Nijmegen	Neville Chemicals; Uithoorn
Delamine; Delfzijl	Norit; Klazienaveen
Dishman Netherlands; Veenendaal	Nuplex Resins B.V. polycondensation; Bergen op Zoom
DMV International; Veghel	Nuplex Resins B.V. polyaddition; Bergen op Zoom
DOW Chemical; Terneuzen	Sabic Innovative Plastics; Bergen op Zoom
DSM Special Products; Rotterdam Botlek	Shell Nederland Chemie, Moerdijk
Galvano; Hengelo	Shin-Etsu PVC B.V.
Hexion Specialty Chemicals, Pernis	Shin-Etsu VC B.V.
Kemira Chemicals B.V.; Tiel	Unimills; Zwijndrecht
Koch Raffinaderij; Rozenburg	Zaid Chemie; Sas van Gent

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Organisations focusing on PI

PIN-UK: Network on Process Intensification (An active network on PI exists in the United Kingdom. More information is available through their website) - pin.ac.uk/htmls1.htm
 ECN (Providing a.o. HEX technology) - www.ecn.nl
 TNO-MEP (Providing a.o. HEX technology) - www.mep.tno.nl
 Food Technology Centre, Wageningen University (Integrated Extrusion-Extraction, Volumetric Heating, Membrane Emulsification) - www.ftc.wur.nl
 Dechema (Gesellschaft für Chemische Technik und Biotechnologie) - www.dechema.de
 AIChE (Publishes Chemical Engineering Progress and organizes symposia) - www.aiche.org
 IMM (Institut für Mikro Technik Mainz) - www.imm-mainz.de
 School of Chemical Engineering And Advanced Materials, University of Newcastle upon Tyne (Providing a.o. HEX technology; High Gee distillation. Research on rotating disc reactions) - www.ncl.ac.uk/ceam
 BHR Group Cranfield, UK (Test facilities. Prepared report *Potentials for HEX* for SenterNovem PIN NL in 1988. Organises PI conferences, OSPRI testfacilities for on site-PI testing) - www.bhrgroup.co.uk
 Universität Dortmund, Technische Chemie - Reaktionstechnik (Microtechnology) - www.chemietechnik.uni-dortmund.de
 Faculty of Chemical Engineering and Chemistry, Laboratory of Chemical Reactor Engineering, University of Eindhoven (Research on transient and micro reactor systems) - www.chem.tue.nl
 GRETH (Groupement pour la Recherche sur les Echangeurs Thermiques) - www.greth.org
 Reactor and Catalyst engineering, University of Delft (structured catalyst and reactor research) - www.dct.tue.nl/race
 Chemical Reaction Engineering & Process Intensification Group - www.etseq.uv.es/CREPI



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Program 17-6-10

Timing	Title of Presentation	Speaker	Function
13.00 - 13.20	PIN NL intro	Ir. Henk Akse	Chairman, CEO Traxxys
13.20 - 13.50	MIPs and other novel selective resins for effective separations	Anthony R Rees MA DPhil	CEO of MIP Technologies Lund Sweden
13.50 - 14.20	Dividing wall columns: which wall separates Dutch industry from application?	Dr. Hartmut Schoenmakers + co-author from BASF	Former head of Corporate Technology BASF Ludwigshafen
14.20 - 14.50	Combining reactions and separations using Ionic Liquids	Dr.ir. Maaike C. Kroon	Assistant professor TU Delft
14.50 - 15.30	Tea / coffee break		
15.30 - 16.00	Rotating Packed Beds: a Swirl into Cost efficient Separation?	Prof.dr.ir. Henk van den Berg + co-author from DOW Chemical	Professor plant & process design University of Twente
16.00 - 16.30	Spinning Disc & Rotating Foam	Dr.ir. John van der Schaaf	Assistant professor University of Eindhoven
16.30 - 17.00	OMEGA; successful process intensification at Shell	Ir. Arthur Rots	Team leader EO/EG Shell Global Solutions Amsterdam

