

# ***DSB-Products in the Phosphoric-Acid-INDUSTRY***

## **Contents**

<b>1</b>	<b><i>Tanks lined with DSB-Materials</i></b>	<b><i>1</i></b>
<b>2</b>	<b><i>Sales- and Technical-Force of DSB-Export</i></b>	<b><i>2</i></b>
<b>3</b>	<b><i>Casestudies</i></b>	
<b>4</b>	<b><i>DSB-Materials installed in the P2O5-Industry</i></b>	<b><i>12</i></b>
<b>4.1</b>	<b>Mortars:</b>	<b>12</b>
<b>4.2</b>	<b>Bricks:</b>	<b>12</b>
<b>4.3</b>	<b>Membranes</b>	<b>12</b>
<b>4.4</b>	<b>Concrete Protection sheets</b>	<b>12</b>
<b>5</b>	<b><i>DSB-References</i></b>	<b><i>13</i></b>

## **1 TANKS LINED WITH DSB-MATERIALS**

- Attack Tanks, Reactors
- Digestion Tanks
- Filtration Tanks
- Storage Tanks
- Evaporators
- Flash Chambers
- Reactor for Filtration Plant
- Cooling Towers
- Thickeners
- Sumps, Drains, Channels
- Floors
- Flash Coolers

**2 SALES- AND TECHNICAL-FORCE OF DSB-EXPORT**

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### 3 CASESTUDIES

	<p><b>External coating for Concrete Attack Tank as Single Tank for SIAPE-Process</b></p>
	<p><b>External Ring of SIAPE-Attack Tank with separation wall</b></p>



**Underflow in  
SIAPE-Reactor**



**Inner Ring wall of  
SIAPE-Reactor**






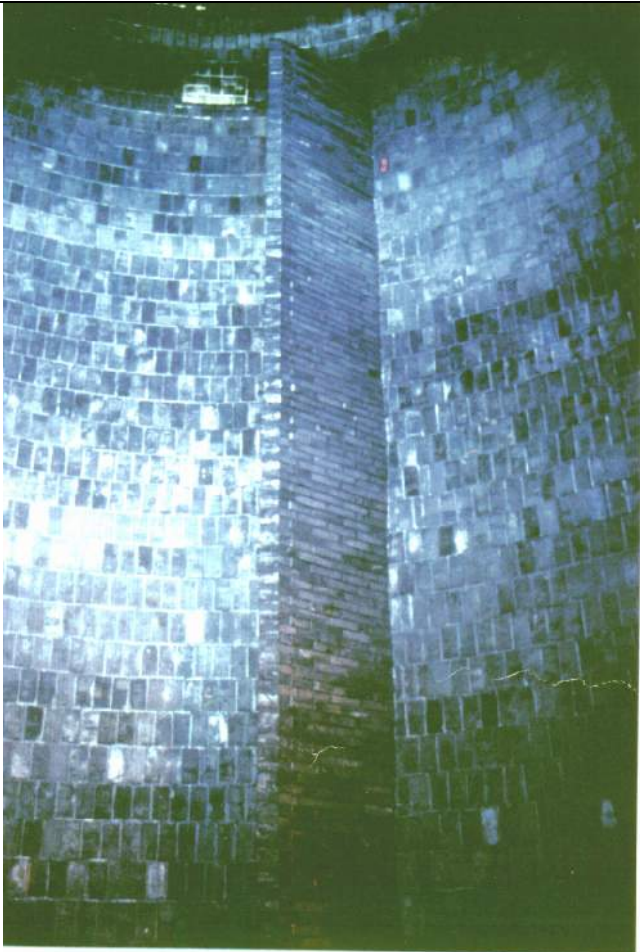
**Overflow in  
SIAPE-Reactor**



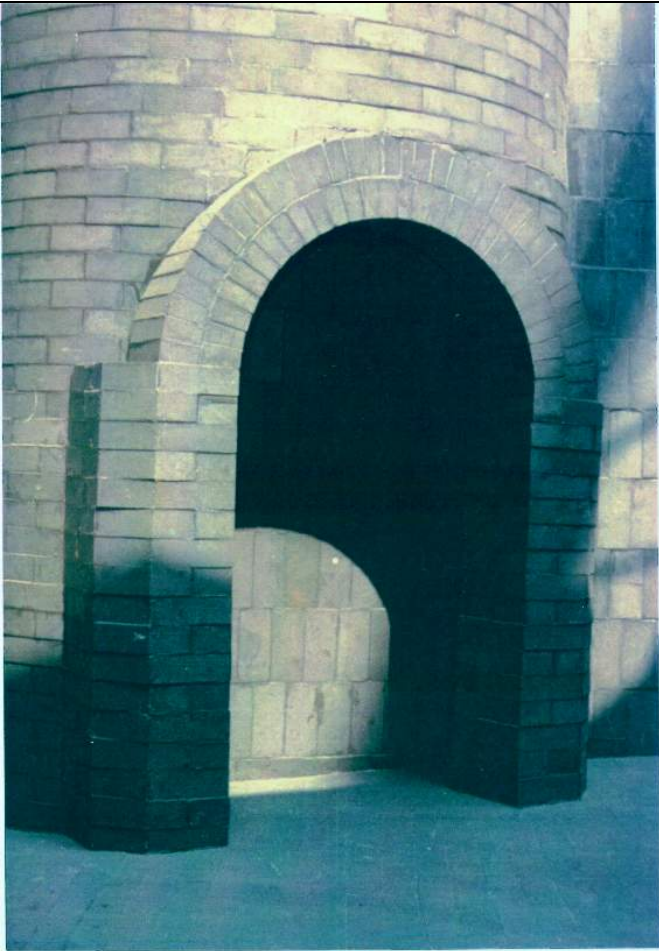
**Manhole**

 <p>10 14:01</p>	<p><b>Nozzles</b></p>
 <p>10 14:05</p>	<p><b>Wear resistant SS-Plates under Agiators</b></p>
	<p><b>Steel-Reactors according to Hydro-Agri- Process</b></p>

 A photograph showing the exterior of a large industrial facility. Two prominent white cylindrical tanks are visible, surrounded by a complex network of metal scaffolding, walkways, and stairs. The sky is clear and blue.	<p><b>Rubber- + Bricklining and Flash Chamber and Flash Cooler</b></p>
 An interior view of a large, circular industrial tank under construction. Several workers in blue shirts are visible on the floor, which is cluttered with construction materials, tools, and buckets. The walls are partially lined with bricks and steel baffles.	<p><b>Rubber- + Bricklining and Steel-Baffles brick-lined</b></p>
 A close-up photograph of the brick lining inside the tank. The bricks are laid in a double layer, and blue protective strips are visible along the edges of the brickwork. A white bucket and a red bucket are in the background.	<p><b>Double layer of bricks under Agitators</b></p>



**Baffle made out of bricks**



**Entrance door for upstream pipe in a Hydro-Agri Steel-Reactor**



 <p>HDPE PROTECTIVE LINER</p>	<p><b>Stellaplast-HDPE-Liner in nozzles of concrete Reactor according to Prayon-Process</b></p>
 <p>HDPE LINER - TOP OF THE REACTOR</p>	<p><b>Stellaplast-HDPE-Liner built in into nozzles</b></p>
	<p><b>Rubberlining in Prayon-Concrete-Reactor</b></p>



**External coating  
for Bac à Filtrat**



**Internal  
Bricklining for  
Bac à Filtrat**



**Rubberlining in  
Storage Tanks**



**External  
Tilelining for  
Bac à Filtrat**



**Rubber- and  
Brick-Lining for a  
concrete Reactor  
in the Filtration  
unit**



**Maintenance  
work at a  
concrete Reactor  
wall**

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## **4 DSB-MATERIALS INSTALLED IN THE P2O5-INDUSTRY**

### ***4.1 Mortars:***

**Resacid F**

**Resacid FQ**

### ***4.2 Bricks:***

**Didier SF**

**Didier RS**

**Neracid A**

**Neracid BL**

**Neracid F**

### ***4.3 Membranes***

**Stellabutyl CB**

**Stellasin CR**

**Stellatar E/EW**

**Stellatex HC**

### ***4.4 Concrete Protection sheets***

**Stellaplast**

**5 DSB-REFERENCES**

<u>Year</u>	<u>Client</u>	<b>Rhone Poulenc, Belgium</b>
<i>DSB-Products</i>		<i>Objects</i>
1980-1990	Stellatex HC, Resacid F, C-bricks, Stellabutyl-Rubber, Stellatar E/EW	Concrete Reactors and Maintenance

<u>Year</u>	<u>Client</u>	<b>Hydro-Agri, Holland</b>
<i>DSB-Products</i>		<i>Objects</i>
1975-1997	Stellatex HC, Resacid F, C-bricks, Stellabutyl-Rubber, Stellatar E/EW	C-Steel Reactors and Maintenance

<u>Year</u>	<u>Client</u>	<b>Société Chimique Prayon-Rupel, Engis, Belgium</b>
<i>DSB-Products</i>		<i>Objects</i>
1970-2002	Stellatex HC, Resacid F, C-bricks, Stellabutyl-Rubber, Stellatar E/EW	<ul style="list-style-type: none"> <li>• Maintenance at</li> <li>• concrete Reactors,</li> <li>• Cuve de digestion,</li> <li>• Filtration area</li> <li>• Drains, floors</li> </ul>

<u>Year</u>	<u>Client</u>	<b>Zimbabwe Phosphate Industries, Zambia</b>
<i>DSB-Products</i>		<i>Objects</i>
1999	Stellabutyl CB-Rubber, C-Bricks, Resacid F-Mortar	1 x Concrete Reactors, Prayon-process

<u>Year</u>	<u>Client</u>	<b>Indian Ocean Fertilizer, Richardsbay, SA</b>
<i>DSB-Products</i>		<i>Objects</i>
2003	Stellabutyl CB-Rubber, C-Bricks, Resacid F-Mortar	1 x Concrete Reactors, Prayon-process
	Stellatar EF	Concrete Cooling towers
	Stellatar E/EW, Tiles, Resacid F-Mortar	Concrete Floor areas, Drains, sumps

<u>Year</u>	<u>Client</u>	<b>Omnia Plast Phosphates, Rustenberg, SA</b>
<i>DSB-Products</i>		<i>Objects</i>
1999	Stellabutyl CB-Rubber, C-Bricks, Resacid F-Mortar	1 x Concrete Reactors, Prayon-process

<u>Year</u>	<u>Client</u>	<b>WMC Fertilizer, Phosphate Hill Australia</b>
<i>DSB-Products</i>		<i>Objects</i>
1999	C-Bricks, Resacid F-Mortar	4 x Steel Reactors
1999	C-Bricks, Resacid F-Mortar	Flash Chamber, CS-Tank
1999	C-Bricks, Resacid F-Mortar	Flash Cooler, CS-Tank
<u>Year</u>	<u>Client</u>	<b>Southern Cross Fertilizer, Phosphate Hill Australia</b>
2003	C-Bricks, Resacid F-Mortar	Maintenance Materials
2004	C-Bricks, Resacid F-Mortar	Maintenance Materials
2005	Bricks + Baffle-Bricks, Resacid F-Mortar	Maintenance Materials
2006	C-Bricks, Resacid F-Mortar	Maintenance Materials
2007	C-Bricks, Resacid F-Mortar	Maintenance Materials
2008	C-Bricks, Resacid F-Mortar	Maintenance Materials
2009	Resacid F-Mortar	Maintenance Materials

<u>Year</u>	<u>Client</u>	<b>Groupe Chimique Tunisien, Sfax, La Skhira, Gabes, Gafsa, Tunisia</b>	
		<b><i>DSB-Products</i></b>	<b><i>Objects</i></b>
1970-2000	<ul style="list-style-type: none"> <li>• Stellasin CR-Rubber,</li> <li>• SF/C-Bricks,</li> <li>• Resacid F-Mortar,</li> <li>• Stellatar E/EW,</li> <li>• Stellatex HC</li> </ul>		<ul style="list-style-type: none"> <li>• Concrete Reactors</li> <li>• Concrete Digestion Tanks</li> <li>• Concrete Filtration tanks,</li> <li>• Evaporators, C-Steel</li> <li>• Floors, Drains, Channels</li> </ul>
2001	Stellasin CR-Rubber, SF/C-Bricks, Resacid F-Mort., Stellatar E/EW, Stellatex HC		Maintenance Materials and Supervision Services
2001	Stellasin CR-Rubber, SF/C-Bricks, Resacid F-Mort., Stellatar E/EW, Stellatex HC		Filtration Tank
2002	Stellasin CR-Rubber, SF/C-Bricks, Resacid F-Mort., Stellatar E/EW, Stellatex HC		Maintenance Materials and Supervision Services
2002	Stellasin CR-Rubber, SF/C-Bricks, Resacid F-Mort., Stellatar E/EW, Stellatex HC		Maintenance Materials and Supervision Services
2003	Stellasin CR-Rubber, SF/C-Bricks, Res-acid F-Mort., Stellatar E/EW, Stellatex HC		Maintenance Materials and Supervision Services
2003	Stellasin CR-Rubber, SF/C-Bricks, Resacid F-Mort., Stellatar E/EW, Stellatex HC		New DAP-Reactor, concrete
2004	Stellasin CR-Rubber, SF/C-Bricks, Resacid F-Mort., Stellatar E/EW, Stellatex HC		Maintenance Materials and Supervision Services
2004	C-Bricks, Res. F-Mortar, Stellatar E/EW, Stellatex HC		Filtration Tank
2005	Stellasin CR-Rubber, SF/C-Bricks, Resacid F-Mort., Stellatar E/EW, Stellatex HC		Maintenance Materials and Supervision Services
2005	Stellasin CR-Rubber, SF/C-Bricks, Resacid F-Mort., Stellatar E/EW, Stellatex HC		New Filtration-Reactor, concrete
2006	Stellasin CR-Rubber, SF/C-Bricks, Resacid F-Mort., Stellatar E/EW, Stellatex HC		Maintenance Materials and Supervision Services
2007	Stellasin CR-Rubber, SF/C-Bricks, Resacid F-Mort., Stellatar E/EW, Stellatex HC		Maintenance Materials and Supervision Services
2008	Stellasin CR-Rubber, SF/C-Bricks, Resacid F-Mort., Stellatar E/EW, Stellatex HC		Maintenance Materials and Supervision Services
2009	Stellasin CB-Rubber, SF/C-Bricks, Resacid F-Mort., Stellatar E/EW, Stellatex HC		Maintenance Materials and Supervision Services

<u>Year</u>	<u>Client</u>	<b>PFI-Kavalla, Greece</b>	
		<b><i>DSB-Products</i></b>	<b><i>Objects</i></b>
≤ 2000	Stellasin CR-Rubber, SF/C-Bricks, Res-acid F-Mort., Stellatar E/EW		Maintenance Materials
2001	SF/C-Bricks, Resacid F-Mort.		Maintenance Materials
2002	SF/C-Bricks, Resacid F-Mort.		Maintenance Materials
2003	SF/C-Bricks, Resacid F-Mort.		Maintenance Materials
2005	C-Bricks, Resacid F-Mortar		New Digestion Tank, C-Steel
2006	C-Bricks, Resacid F-Mortar		New Storage Tank, C-Steel
2006	Stellapox, SF-Bricks, Resacid F-Mortar		New catch-ment area, Concrete
2007	Stellabutyl CB-Rubber, C-Bricks, Resacid F-Mortar		New Reaction Tank, C-Steel
2008	Stellabutyl CB-Rubber, C-Bricks, Resacid F-Mortar		2 x New Reaction Tanks, C-Steel
2008	Stellabutyl CB-Rubber, C-Bricks, Resacid F-Mortar		New Attackd Tank, C-Steel

<u>Year</u>	<u>Client</u>	<b>Bagfas, Turkey</b>	
		<b><i>DSB-Products</i></b>	<b><i>Objects</i></b>
		Stellatar E/EW, Stellatex HC, SF-bricks and tiles	Maintenance Materials
2001		Stellatar E/EW, Stellatex HC, SF-bricks and tiles	Maintenance Materials
2003		Stellatar E/EW, Stellatex HC	Maintenance Materials
2004		Stellatar E/EW, Stellatex HC, SF-bricks and tiles	Maintenance Materials
2005		Stellatar E/EW, Stellatex HC	Maintenance Materials
2006		Stellatar E/EW, Stellatex HC, SF-bricks and tiles	Maintenance Materials
2007		Stellatar E/EW, Stellatex HC, Resacid F	Maintenance Materials
2009		Resacid F	Maintenance Materials

	<b><u>Client</u></b>	<b>SNC-Lavalin, Belgium for</b>	
	<b>Chemical Combine Voskressensk</b>	Voskressensk, USSR	4 Attack Tanks
	<b>Chemical Combine Gomel</b>	Gomel, USSR	3 Attack Tanks
	<b>Chemical Combine Arminansk</b>	Arminansk; USSR	3 Attack Tanks
	<b>Chemical Combine Uvarovo</b>	Uvarovo; USSR	1 Attack Tank
	<b>Chemical Combine Rowno</b>	Rowno, USSR	2 Attack Tanks
	<b>Chemical Combine Sumy</b>	Sumy; USSR	2 Attack Tanks
	<b>Chemical Combine Balakowo</b>	Balakowo, USSR	4 Attack Tanks
	<b>Chemical Combine Samarkand</b>	Samarkand, USSR	4 Attack Tanks
	<b>Chemical Combine Kingisepp</b>	Kingisepp, USSR	2 Attack Tanks
	<b>Chemical Combine Almalik</b>	Almalik; Ussr	2 Attack Tanks
	<b>Chemical Combine Chardjou</b>	Chardjou; USSR	2 Attack Tanks
	<b>Chemical Combine Kedainskii</b>	Kedainskii, USSR	1 Attack Tank
	<b>Chemical Combine</b>	Tscherepowez, USSR	2 Attack Tanks
	<b>Chemical Combine</b>	Meleouz, USSR	1 Attack Tank
	<b>Chemical Combine</b>	Krasnodar; USSR	1 Attack Tank

<b><u>Year</u></b>	<b><u>Client</u></b>	<b>SNC-Lavalin, Belgium for</b>	
		<b><u>Arya, Mahshar, Iran</u></b>	
	<b><u>DSB-Products</u></b>	<b><u>Objects</u></b>	
2007	Stellasin CR-Rubber, SF/C-Bricks, Res-acid F-Mortar	New concrete Reactor, Prayon Process	
2009	DSB-Supervision	Installation Bricklining in Reactor	

<b><u>Year</u></b>	<b><u>Client</u></b>	<b>Philphos, Philipines</b>	
		<b><u>DSB-Products</u></b>	
		<b><u>Objects</u></b>	
1998	Resacid F-Mortar	Maintenance Materials for concrete Reactors and Digestions tanks	
1999	Resacid F-Mortar	Maintenance Materials for concrete Reactors and Digestions tanks	
2000	Stellasin CR-Rubber, SF/C-Bricks, Res-acid F-Mortar	Maintenance Materials for concrete Reactors and Digestions tanks	

<b><u>Year</u></b>	<b><u>Client</u></b>	<b>Jordan Phosphate Mines, Aqaba, Jordania</b>	
		<b><u>DSB-Products</u></b>	
		<b><u>Objects</u></b>	
1998	Stellasin CR-Rubber, SF/C-Bricks, Resacid F-Mortar	Maintenance Materials for concrete Reactors and Digestions tanks	
2004	Stellasin CR-Rubber, C-Bricks, Resacid F-Mortar, Stellatex HC	New concrete Digestions tank	
2006	Stellasin CR-Rubber, C-Bricks, Resacid F-Mortar, Stellatex HC	Maintenance Mat. for concrete Reactors + Digestions tanks	
2007	Stellasin CR-Rubber, C-Bricks, Resacid F-Mortar, Stellatex HC, Stellapox	Maintenance Materials for concrete Reactors and Digestions tanks	
2008	Stellasin CR-Rubber, C-Bricks, Resacid F-Mortar, Stellatex HC, Stellapox	Maintenance Materials for concrete Reactors and Digestions tanks	

<b><u>Year</u></b>	<b><u>Client</u></b>	<b>Lebanon Chemicals Company, Lebanon</b>	
		<b><u>DSB-Products</u></b>	
		<b><u>Objects</u></b>	
1997	SF/C-Bricks, Resacid F-Mortar	Maintenance Materials	
1998	SF/C-Bricks, Resacid F-+ Stellakitt KG-Mortar	Maintenance Materials	
2001	SF-Bricks, Stellakitt KG-Mortar	Maintenance Materials	
2003	SF-Bricks, Stellakitt KG-Mortar	Maintenance Materials	
2004	Refractory Bricks	Maintenance Materials	

<b><u>Year</u></b>	<b><u>Client</u></b>	<b><u>Lifosa, Lithuania</u></b>
	<b><u>DSB-Products</u></b>	<b><u>Objects</u></b>
2000	Resacid F-Mortar	Maintenance Materials
2001	Resacid F-Mortar	Maintenance Materials
2002	Resacid F-Mortar	Maintenance Materials
2003	Resacid F-Mortar	Maintenance Materials
2004	Resacid F-Mortar	Maintenance Materials
2005	Resacid F-Mortar	Maintenance Materials
2006	Resacid F-Mortar	Maintenance Materials
2007	SF/C-Bricks, Resacid F-Mortar	Maintenance Materials
2008	SF/C-Bricks, Resacid F-Mortar	Maintenance Materials
2009	C-Bricks, Resacid F-Mortar	Maintenance Materials