



Fine chemicals for fine people

DALCHEM has been working since 1997
on a world market of
organophosphorus and **organometallic compounds**.



Nizhny Novgorod
is located in
the European part
of Russia
(400 km from Moscow)

www.dalchem.com

Personnel

High quality of our products is provided by
our **high qualified people**



Staff consists of **80 persons**,
34 employees have equivalent of **Master Degree** and **15 – Ph.D.** in chemistry.
34 chemists and **21 technicians**
work in the laboratories.

Our production capacity

Dalchem is an emerging company, upgrading its facilities.

May 2008 – the first pilot plant was run (330 m²/3500 sq.ft.)

February 2010 – the second pilot plant started to operate (490 m²/5300 sq.ft.)

February 2013 – the third pilot plant was run (1300 m² /14000 sq.ft.)



Our production capacity

Pilot
Plant



**Dalchem pays major attention to personnel selection and training.
Our staff consists of high-qualified and experienced specialists.**

Our production capacity

Main production equipment	Total, pc
Huber Unistats (151W, 520W, 910W, 915W)	14
Huber Unichiller (UC210Tw-4)	7
65 liters stainless steel reactors (to work from -70 to 200 °C)	25
100 liters stainless steel reactors (to work from -70 to 200 °C) (additional 10 pcs of 100 lt reactors are on order)	20
Total reactor's capacity, lt	3600
20 liters stainless steel filters	47
Glove Box with Gas Purification (PureLab HE2)	
Short path distillation plant, VKL 70-4 FDRR SKR	
The Rosenmund® Laboratory Filter / Dryer "RoLab 2" 0.2 sq.m.	

We produce from grams up to kilos (up to 3000 kg/year)

We are experienced in work with air sensitive, moisture sensitive and pyrophoric organometallic compounds.

We carry out reactions in the temperature range from -100°C up to $+300^{\circ}\text{C}$

Organophosphorus compounds

**Binaphthyl
Phosphine
ligands**

**Phospholane
ligands**

**Biphenyl
Phosphine
ligands**

**Chiral
Phosphines**

Aminophosphines

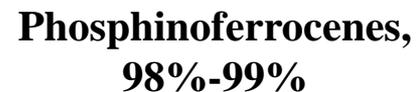
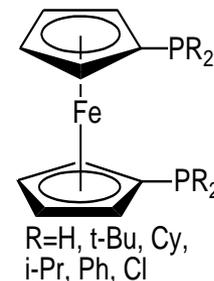
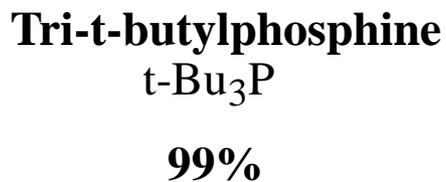
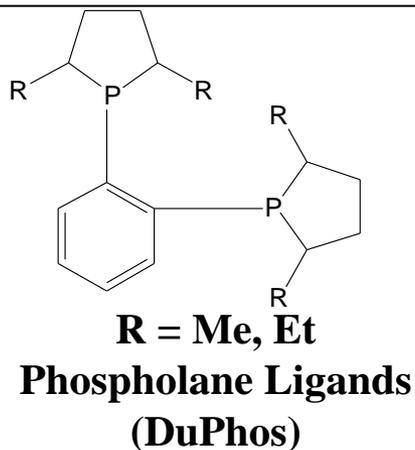
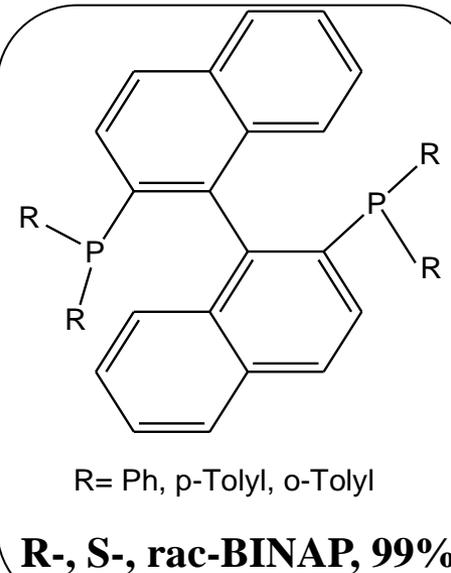
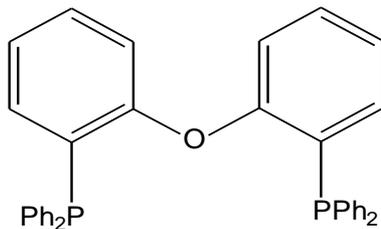
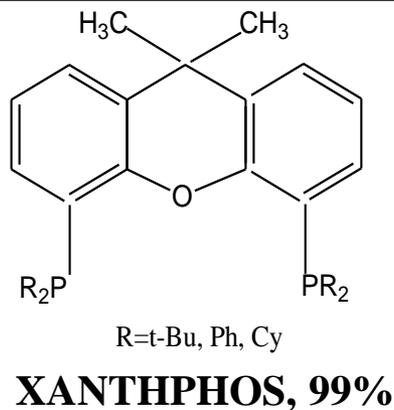
Halophosphines

Phosphinoferrocenes

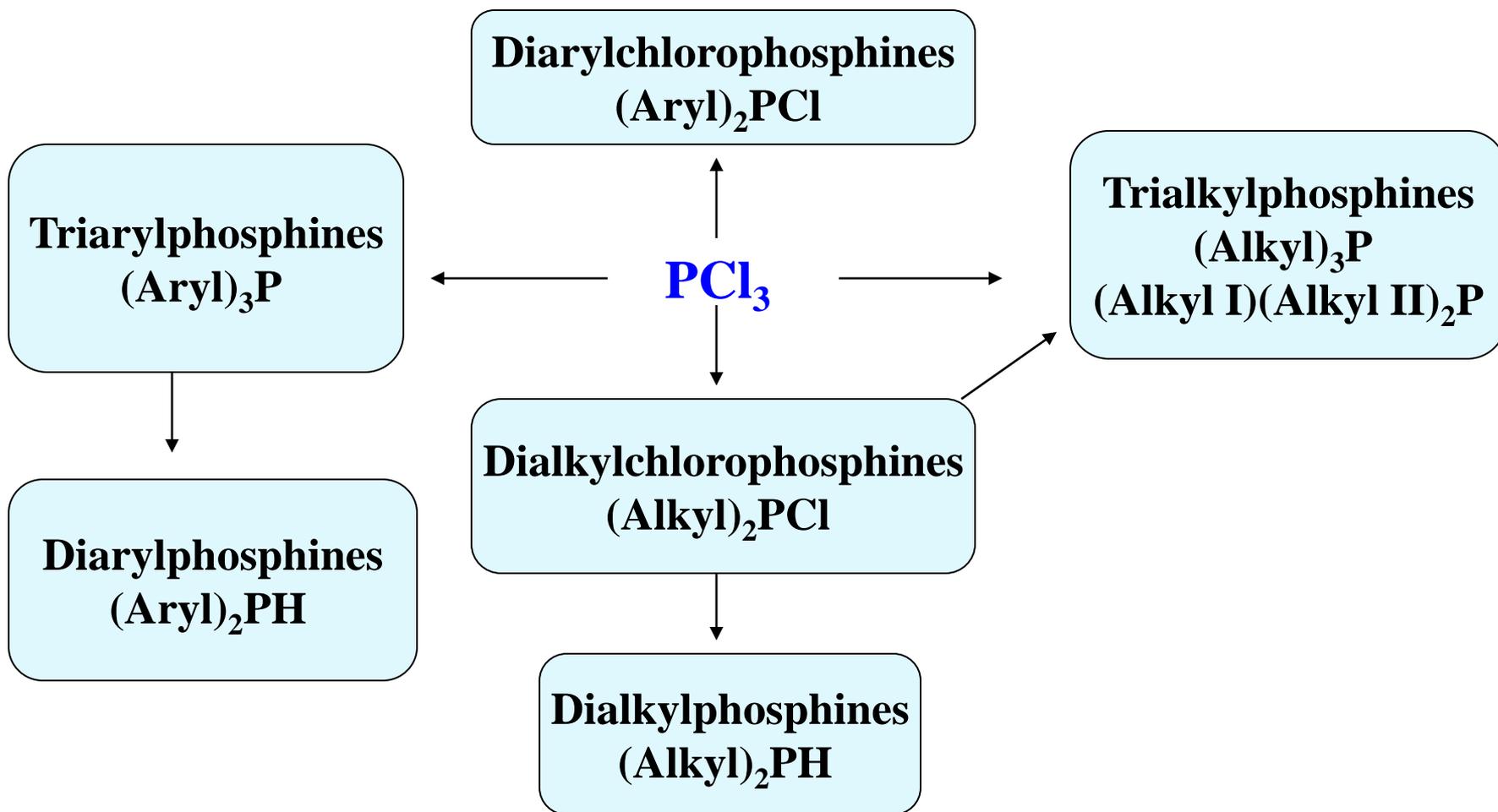
**Building Blocks
for Phosphine Ligands**

Totally around 200 items in product-list

Organophosphorus products highlights



Phosphines



Organometallic compounds

**Cyclopentadienyl
derivatives**

**Alkylcyclopentadienyl
derivatives**

**Cyclooctadiene
derivatives**

**Alkyl (Aryl)
derivatives**

**Indenyl
derivatives**

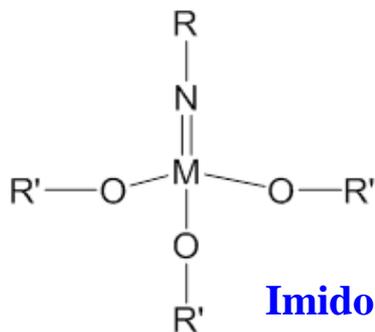
**Dialkylamino &
Imido
derivatives**

**beta-Diketonato
complexes**

**Bridged
metallocenes**

Totally around 280 items in product-list

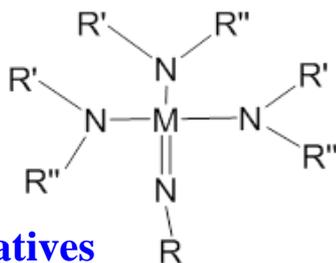
Product highlights in organometallics



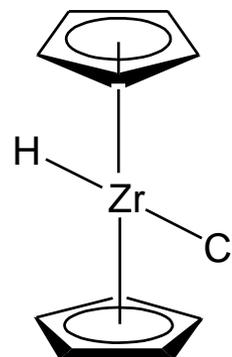
R, R' = t-Bu, i-Pr

Imido derivatives

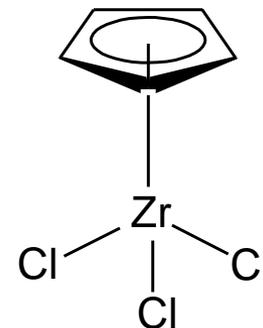
M = Ta, Nb



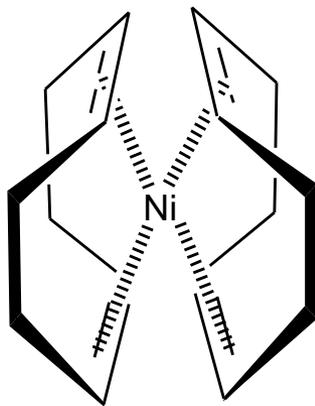
R = t-Bu, i-Pr
R', R'' = Et, Me



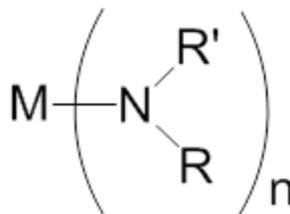
Schwartz's Reagent



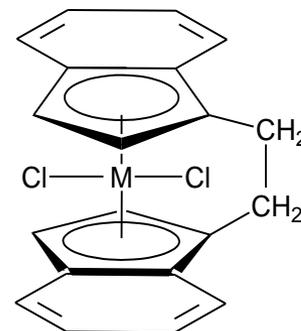
Cyclopentadienylzirconium trichloride



COD Ni

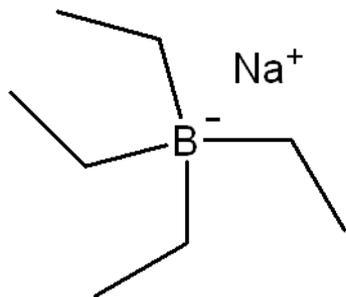


n=3,4
M = Zr, Hf, Ti, Si

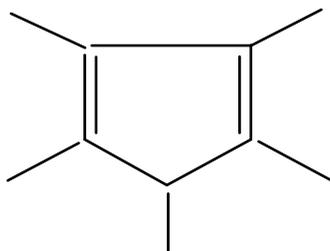


M = Ti, Zr
rac-Ethylenebis(1-indenyl)-metal dichlorides

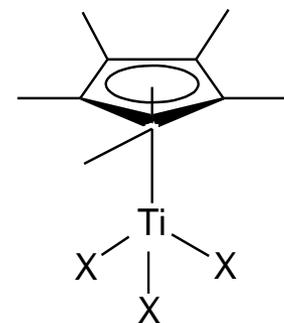
Product highlights in organometallics



Sodium tetraethylborate

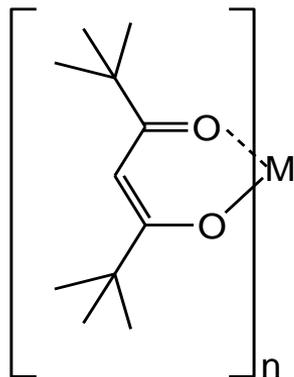


Pentamethylcyclopentadiene
and its metal derivatives

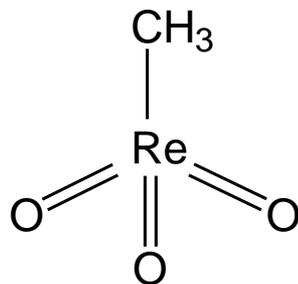


X = Cl, OMe

Pentamethylcyclopentadienyl-
titanium derivatives



TMHD and its
complexes with metals



Methyltrioxorhenium



R = Alkyl

Alkylcyclopentadienyl
derivatives



Fine chemicals for fine people

Custom Synthesis

15 years Dalchem has been providing

“Custom Synthesis” in the field of organometallic and organophosphorus chemistry.

Our main principals of Custom Synthesis:

- I. We do custom synthesis only **in the field of our expertise.**
- II. **Confidential basis for** this service (if required).
- III. **Flexibility** to the customer's requests
- IV. **Quick response** to all requests.
- V. **Regular reporting** during synthesis is available (upon request).
- VI. **Scale-up and technology transfer** (under special agreement).

Currently we have about 20 Confidential Disclosure Agreements in force with different companies

www.dalchem.com

Quality Control



*Each product's batch is provided with the
Certificate of Analysis*

All our products pass Quality Control on all intermediate steps and finally before they are shipped to our customers.

The assay of our compounds usually is 98-99%

but in many cases reaches 99+%

We are tracing all product's batches **from the first step of the synthesis up to delivery**

and keep this information to provide prompt reply to any request.

Our quality control equipment:

NMR on ^{31}P , ^{13}C , ^1H

ICP MS

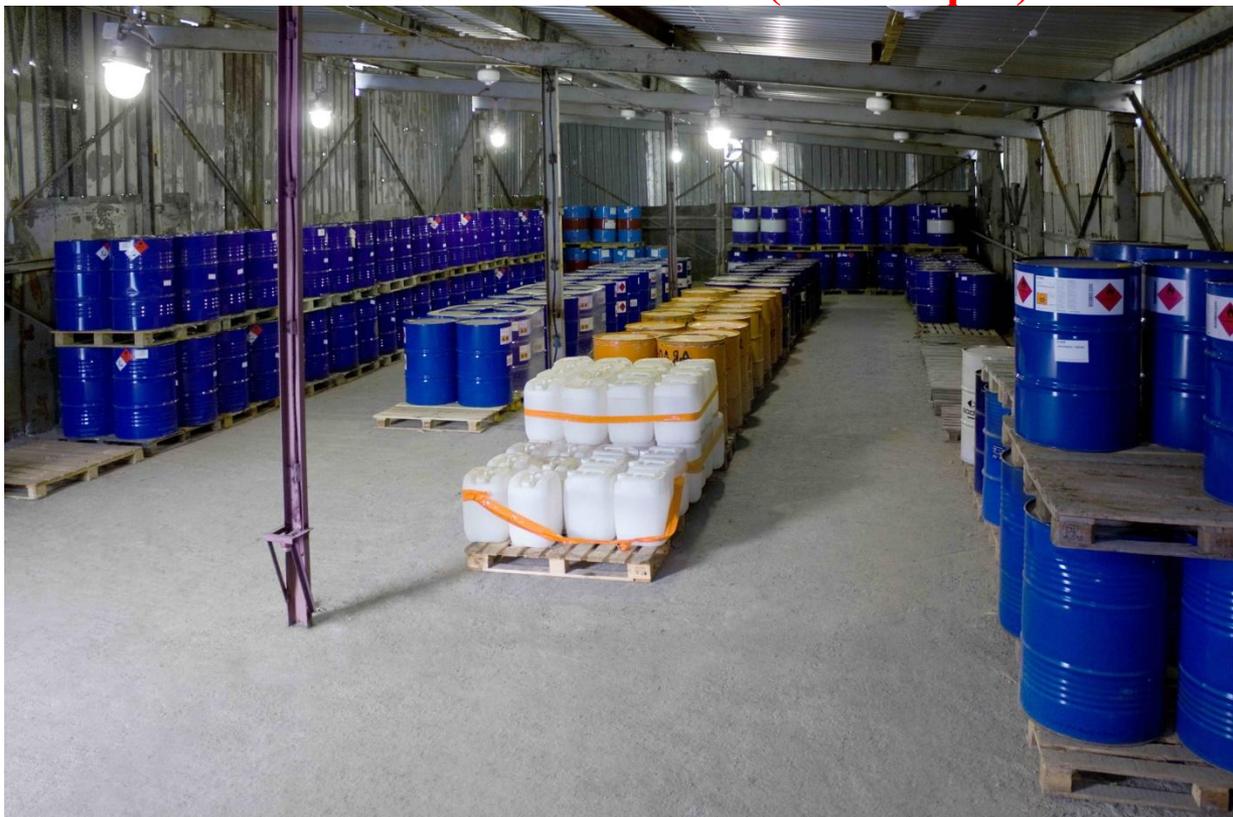
GC (HP 6890, Agilent 7890)

**HPLC (Alliance from Waters), Polarimeter,
Karl Fischer Coulometer**

C&H analysis, mp testing (MEL-TEMP 3.0)

Production starts from the raw materials

Warehouse area is 2430 m² (26200 sq. ft)



Nearly 450 items of starting materials are stock with a value \$0.6 mln.

Stock



70-80% of our products are available from stock

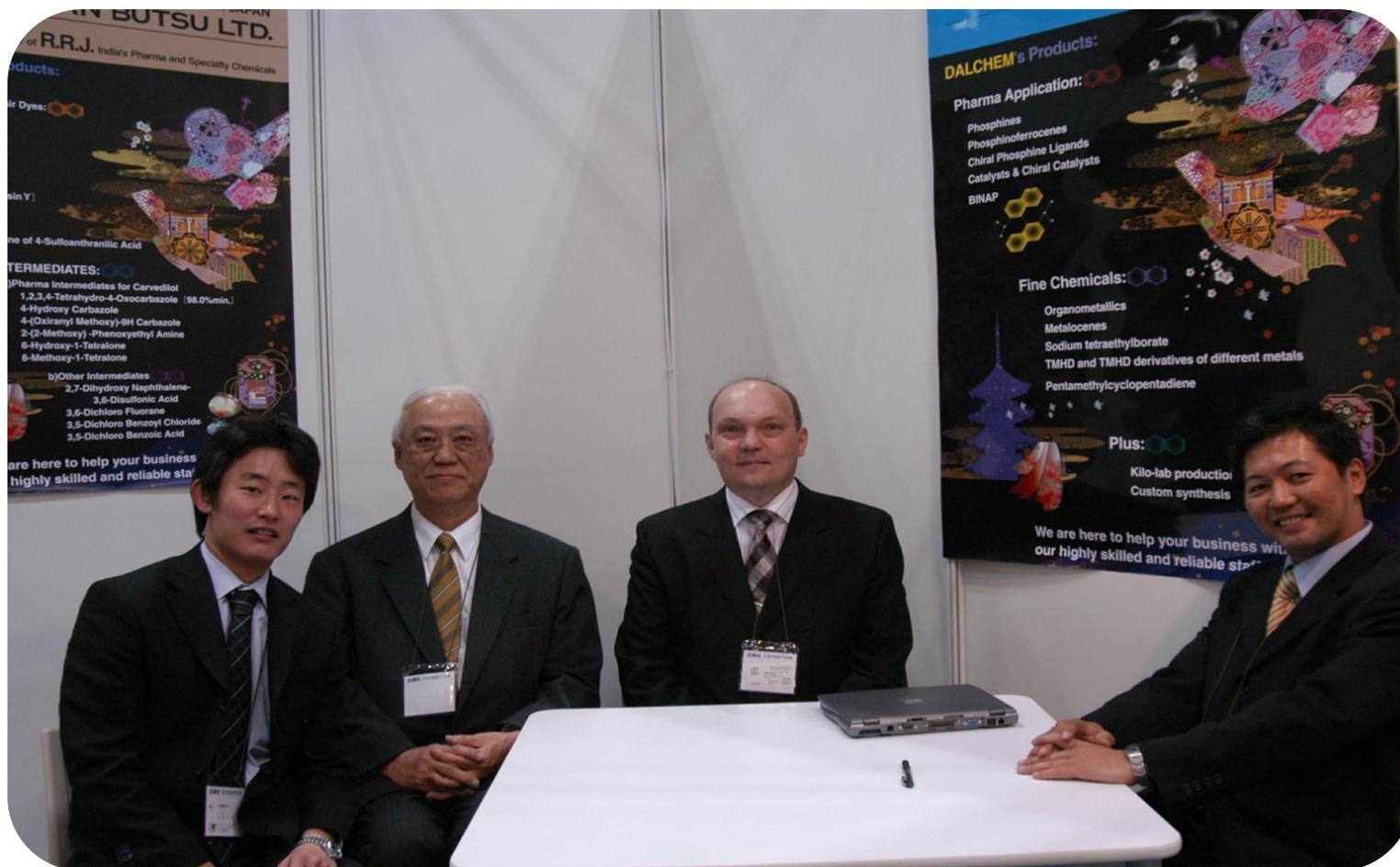
**Currently approx. 500 items of our products are in stock with a value \$2.5 mln.
(at production cost).**

Prompt shipments – it's one of our missions that we are trying to implement



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Chukan Butsu Ltd. is our
Exclusive sales agent in Japan



www.dalchem.com

Delivery



International airport
in Nizhny Novgorod
gives us ability to
ship in time using
Lufthansa Cargo and
DHL.

We also can ship
hazardous products
by truck and boat.

Packing materials, conformed to IATA regulations, provide
full safety for delivered goods.









