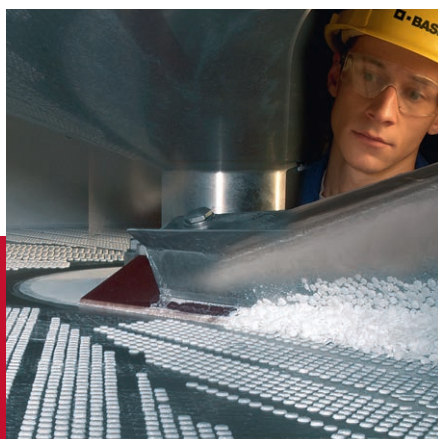


# Phosphine Building Blocks and Phosphine Ligands

## Triphenylphosphine (TPP) – Versatile Applications

TPP is a highly efficient intermediate that is:

- successfully used in many applications, including vitamin synthesis, and for the production of pharmaceutical active ingredients, crop protection products and coatings,
- essential as a co-catalyst in isobutanol and n-butanol production,
- a popular initiator of several polymerization reactions,
- used successfully as an oxidation and UV stabilizer in plastics.



BASF is the first company world-wide to offer TPP as pellets (photo). Compared to the traditional flakes, this product reduces dust formation, prevents caking, improves handling and processing and is an improvement on safety.

BASF is the leading producer of TPP. As a reliable supplier of special intermediates for active ingredients and advanced materials BASF has long experience in the manufacturing of sophisticated and new tailor-made products.

## Other Phosphine Derivatives

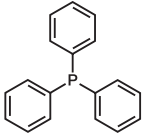
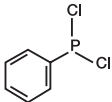
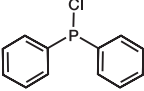
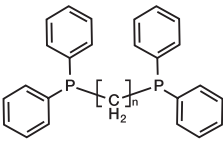
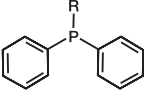
### ■ Chlorophosphines – Versatile building blocks for various phosphines

Dichlorophenylphosphine (DCPP) and diphenylchlorophosphine (DPCP) are broadly used for manufacturing modern asymmetrically substituted phosphine ligands. BASF sells DCPP and DPCP as development products.

### ■ (Chelating) Phosphine Ligands – Mono- and bi-dentate ligands for carbonylation, hydroformylation and coupling reactions

To develop and manufacture phosphine ligands we use our broad technology base that comprises Grignard-type chemistry as well as sodium-mediated coupling reactions. Our excellent R&D expertise and the ability to produce reactive materials in more than 30 multi-product and multi-purpose plants make us reliable and long-term partners for our customers in the field of tailor-made phosphine ligands, where we support the whole life cycle of customers' products from lab quantities to full-scale production.

## TPP and Phosphine Portfolio

CAS registry no.	Chemical Structure	Product
603-35-0		Triphenylphosphine (TPP)
<b>Other Phosphine Derivatives</b>		
644-97-3		Dichlorophenylphosphine (DCPP)
1079-66-9		Diphenylchlorophosphine (DPCP)
1663-45-2 6737-42-4 7688-25-7		n = 2 1,2-Bis(diphenylphosphino)ethane, DPPE n = 3 1,3-Bis(diphenylphosphino)propane, DPPP n = 4 1,4-Bis(diphenylphosphino)butane, DPPB
*		R = alkyl, cyclo-alkyl, aryl

BASF sells these phosphines as developmental products. Samples, kilogram and ton quantities are available on request.

\* Customized products – CAS registry number changes according to the final product structure.

## Top Intermediates Supplier

The BASF Group's Intermediates Division develops, produces and markets the world's largest range of intermediates containing more than 600 products. The most important of the division's product groups include amines, diols,

polyalcohols, acids and specialities. Among other applications, intermediates are used as starting materials for coatings, plastics, pharmaceuticals, textile fibres, detergents and crop protectants. Innovative intermediates from BASF

help to improve the properties of final products and the efficiency of production processes. The ISO 9001:2000-certified Intermediates Division operates plants at production sites in Europe, Asia, and the Americas.



## Contact Us

### Europe

Ivo Buck  
Phone: +49 621 60-55377  
ivo.buck@basf.com

### NAFTA

Nadia Roufaiel  
Phone: +1-973-245-6697  
nadia.roufaiel@basf.com

### Asia

Queenie Wan  
Phone: +852 2731-458  
queenie.wan@basf.com