

**BASF**

We create chemistry

Hexamoll® DINCH

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**The trusted non-phthalate  
plasticizer**





## WHAT ARE PLASTICIZERS?

Plasticizers are used to soften rigid PVC (polyvinylchloride) and to turn it from being hard and brittle to soft and flexible.

**One size does not fit all!** Plasticizers go into a wide area of applications, ranging from electrical underground cables to medical devices. The requirements for plasticizers are as diverse as the possible applications: some products are made to withstand extreme temperatures, some have to be very resistant to physical and environmental stress and others are specially designed for close human contact applications. BASF offers the right plasticizers for these different requirements and is convinced that its plasticizers are safe for their intended use.



# Hexamoll® DINCH – the trusted non-phthalate plasticizer

## THIS IS HEXAMOLL® DINCH

Hexamoll® DINCH is the non-phthalate plasticizer specially developed for applications with close human contact. Therefore it is the ideal solution when it comes to high safety and quality standards for use in many sensitive goods such as:

SPORT AND LEISURE  
PRODUCTS



MEDICAL DEVICES

FLOORING



FOOD CONTACT  
APPLICATIONS



WALL COVERING



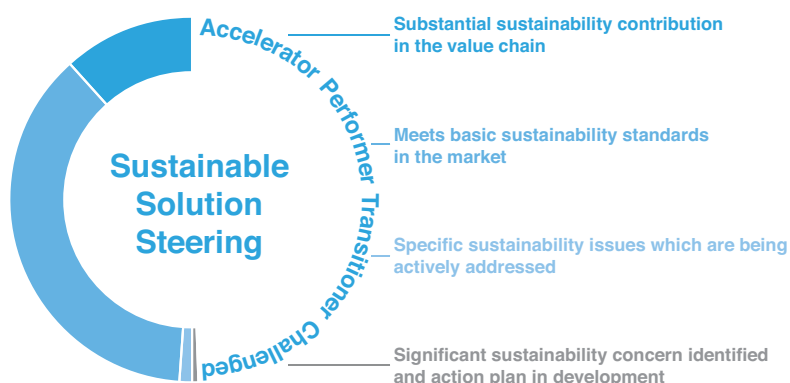
Because of high safety standards and extensive testing, Hexamoll® DINCH is recommended whenever people are in close contact with PVC products that contain plasticizers.

## TOYS

### HEXAMOLL® DINCH ESTABLISHED ON THE MARKET SINCE 2002

BASF has invested more than €7 million in toxicological research for Hexamoll® DINCH thus far. Thanks to its excellent toxicological profile and the low migration rate, the plasticizer is approved and certified by many authorities and institutions worldwide. In addition, Hexamoll® DINCH sets high standards with regard to sustainability. Hexamoll® DINCH was evaluated using the Sustainable Solution Steering methodology. It was classified as an “Accelerator” for its contribution to the sustainability of the customers’ industries in enhancing health and safety aspects.

Sustainable Solution Steering is a comprehensive sustainability evaluation and decision-making process for the entire BASF portfolio. With this approach BASF is evaluating the value chain from cradle to grave considering an industry- and region-specific view on their markets. The target is to achieve a balance between the three dimensions of sustainability – economy, environment and society. Over 60,000 products and solutions of BASF were evaluated and assigned to one of the four categories (Accelerator, Performer, Transitioner, Challenged) according to its contribution to sustainability.



The whole approach has been externally validated  
by PricewaterhouseCoopers AG Germany (PwC)

Thanks to its unique performance Hexamoll® DINCH is an established plasticizer on the market. It can be used as a substitute for traditional phthalates in many sensitive applications. Many leading brands in the toy and medical industries as well as several retailers have developed strong trust in BASF’s non-phthalate plasticizer.

## HEXAMOLL® DINCH OFFERS A WELL-BALANCED TECHNICAL PERFORMANCE

Technically, Hexamoll® DINCH can be processed on your existing machinery, requiring only minor adjustments in formulation and process parameters. Today, this high quality plasticizer is used in many different applications with close human contact because of its excellent toxicological profiles confirmed by extensive tests, which have proven it to be a safe alternative for humans, including infants.

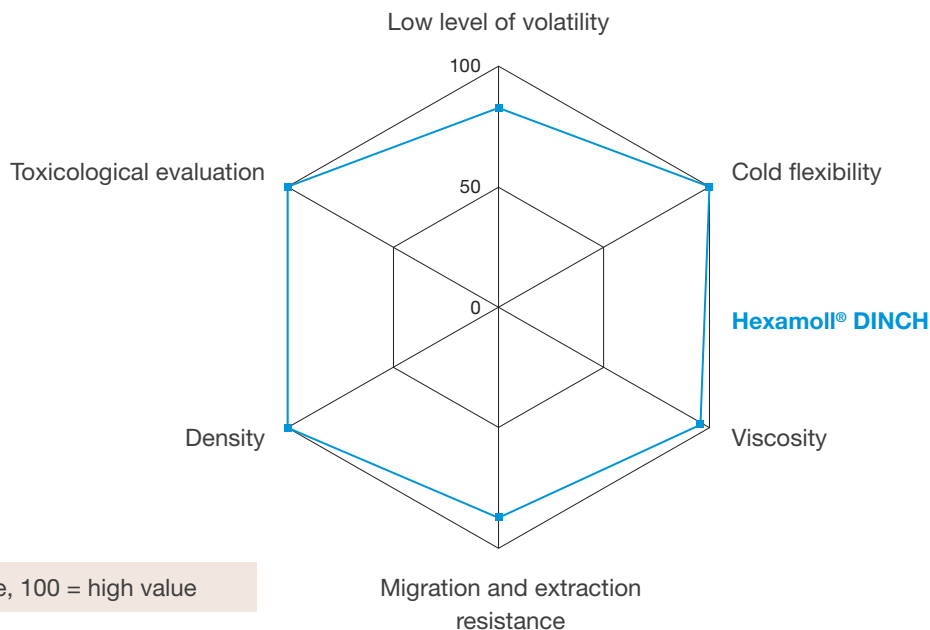
### Hexamoll® DINCH is compatible with PVC over a broad concentration range

#### Hexamoll® DINCH offers a well balanced set of properties

- ▶ Excellent toxicological profile
- ▶ Low viscosity
- ▶ Low density
- ▶ Excellent cold flexibility
- ▶ Low volatility
- ▶ Good migration and extraction resistance

#### Hexamoll® DINCH can be used in PVC production processes such as

- ▶ Extrusion
- ▶ Calendering
- ▶ Injection molding
- ▶ Rotation molding
- ▶ Spread coating







We innovate to make our customers more successful. Our team acts globally and we are ready to support you in any technical questions you may have. The technical centers in Asia, Europe and North America consist of a highly experienced group of chemists and engineers who help customers to take advantage of the many benefits of our non-phthalate plasticizer. We look at your individual needs and develop the appropriate solution together with you.

### HEXAMOLL® DINCH PROVIDES SUPPLY SECURITY

Product availability and security of supply are our top priorities. BASF is your trustworthy expert supplier for a broad range of plasticizers.

We have established a second level of pre-loading inspection at our filling facilities and improved several other processes in order to guarantee the high quality of our plasticizers. In addition, we have large storage capacities to ensure that we can react flexibly and quickly to short-term changes in customer demand. Our global availability and strict quality control gives you peace of mind when it comes to planning and reliable supply.



## HEXAMOLL® DINCH: APPROVED AND CERTIFIED

Hexamoll® DINCH is approved and certified for sensitive applications worldwide. It is suitable for use in endproducts that need to comply with:

### Medical applications

- ▶ Medical Device Regulation (EU) 2017/745
- ▶ European Pharmacopoeia
- ▶ DIN EN ISO 10993
- ▶ US FDA Medical Device Master Files (No. 1484; 16323)
- ▶ US Pharmacopeia (Monograph 88, Class VI)
- ▶ Chinese Food and Drug Administration (CFDA)
- ▶ Japan Ministry of Health, Labor and Welfare (MHLW)

**Hexamoll® DINCH won the Solvin Award and Medical Device Award for the project: “Medical Devices without DEHP in blood product applications”**

### Food contact applications

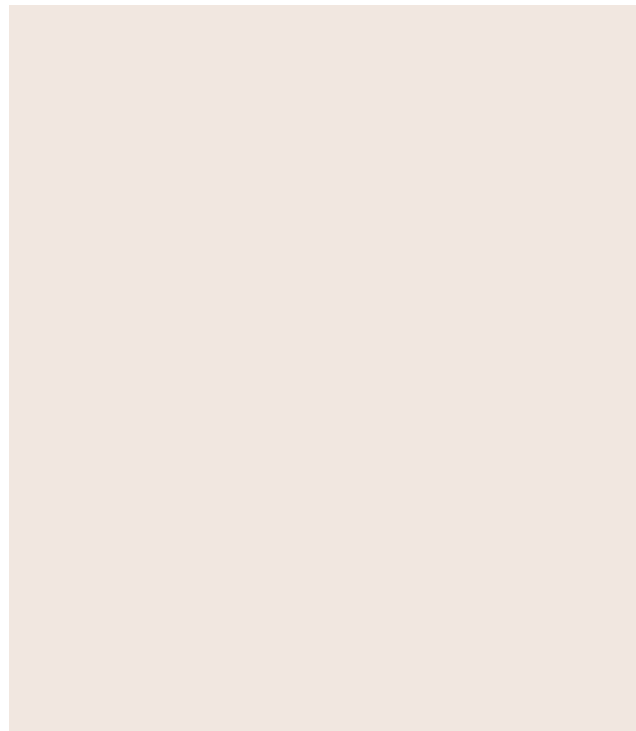
- ▶ European Commission Regulation (EU) No 10/2011
- ▶ Swiss Ordinance on Materials and Articles in Contact with Food (consumer goods from plastics and printing inks)
- ▶ Chinese GB Standard GB9685-2016
- ▶ Japan Hygienic PVC Association (JHPA)
- ▶ Australian National Industrial Chemicals Notification and Assessment Scheme (NICNAS)
- ▶ US National Sanitation Foundation Standard 61 for drinking water system components
- ▶ Health Canada’s Health Products and Food Branch (HPFB)
- ▶ Safe for its intended use in Mexico
- ▶ Human biomonitoring (HBM) data confirm safe exposure

### Toys

- ▶ EU Toy Safety Directive 2009/48/EC
- ▶ European Toys Standards DIN EN 71-3, EN 71-5, DIN EN 71-9
- ▶ US-CPSC toy safety specification ASTM F963
- ▶ GB 6675-2014 Chinese Toy Safety Standard

### Other

- ▶ REACH registered
- ▶ EuPIA (European Printing Ink Association)
- ▶ OEKO-Tex® Standard 100 (textiles)
- ▶ Directive 2011/65/EU (RoHS-Requirements) incl. 2015/863
- ▶ Regulation (EC) No 850/2004
- ▶ Regulation (EC) No 1907/2006 Annex XVII No. 46, 50







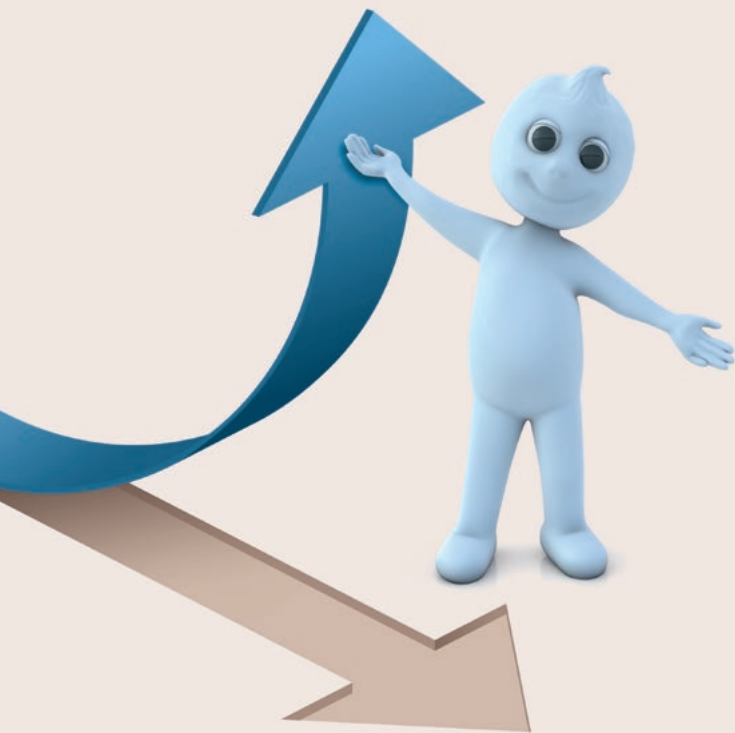
## EXTENSIVE TOXICOLOGICAL TESTING

Hexamoll® DINCH has a non-aromatic structure and is a substitute for traditional phthalate plasticizers. In order to support its safe use in a wide range of applications with close human contact, **BASF has conducted numerous tests to demonstrate that Hexamoll® DINCH is FREE from hazards.**

**Hexamoll® DINCH does NOT show any of these adverse effects:**

▶ Environmental hazard	<b>NO</b>	▶ Testicular toxicity	<b>NO</b>
▶ Peroxisome proliferation	<b>NO</b>	▶ Impairment of fertility	<b>NO</b>
▶ Accumulation within the body	<b>NO</b>	▶ Developmental toxicity	<b>NO</b>
▶ Carcinogenicity	<b>NO</b>	▶ Teratogenicity	<b>NO</b>
▶ Reproductive hazards	<b>NO</b>	▶ Endocrine disruption	<b>NO</b>

Hexamoll® DINCH has been reviewed by authoritative government agencies and independent third parties. This plasticizer has been globally available since 2002 and is successfully used in sensitive applications such as toys, medical devices, food packaging, sports equipment, wall covering and flooring.



## MILESTONES

- 2014** ▶ Start-up of second plant and capacity expansion to 200,000 metric tons per year
- 2013** ▶ Winner of “SolVin Award Special Prize”
- 2007** ▶ Expansion to 100,000 metric tons production capacity annually
- 2006** ▶ Winner of ICIS Innovation Award
- 2002** ▶ Start-up of plant producing 25,000 metric tons per year
- 1998** ▶ Research project “sustainable plasticizers”

**Hexamoll® DINCH capacity is expanding to meet the requirements of our customers.**



The excellent product performance makes Hexamoll® DINCH the ideal solution for many articles made from soft PVC. The plasticizer with a good safety profile is suitable for applications such as medical devices, toys and childcare articles, food packaging, indoor applications such as wall covering, and sport and leisure products. Additionally, Hexamoll® DINCH has proven its suitability in textile applications such as fabric coating and artificial leather.

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#### Examples of medical applications

- ▶ Tubing for enteral feeding and hemodialysis
  - ▶ Respiratory tubing
  - ▶ Catheters
  - ▶ Gloves
  - ▶ Breathing masks
  - ▶ Blood bags
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#### Examples of toys and childcare articles

- ▶ Dolls
  - ▶ Inflatables, e.g. balls
  - ▶ Figurines
  - ▶ Modeling clay
  - ▶ Swimming aids
  - ▶ Baby buggy covers
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#### Examples of food contact applications

- ▶ Cling film
  - ▶ Tubing
  - ▶ Cover seals
  - ▶ Cap closures
  - ▶ Crown caps
  - ▶ Artificial wine corks
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#### Examples of sport and leisure products

- ▶ Gymnastic balls
  - ▶ Exercise mats
  - ▶ Seat cushions
  - ▶ Massage balls and rolls
  - ▶ Shoes
  - ▶ Balls
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#### Examples of indoor applications

- ▶ Flooring
  - ▶ Wall covering
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