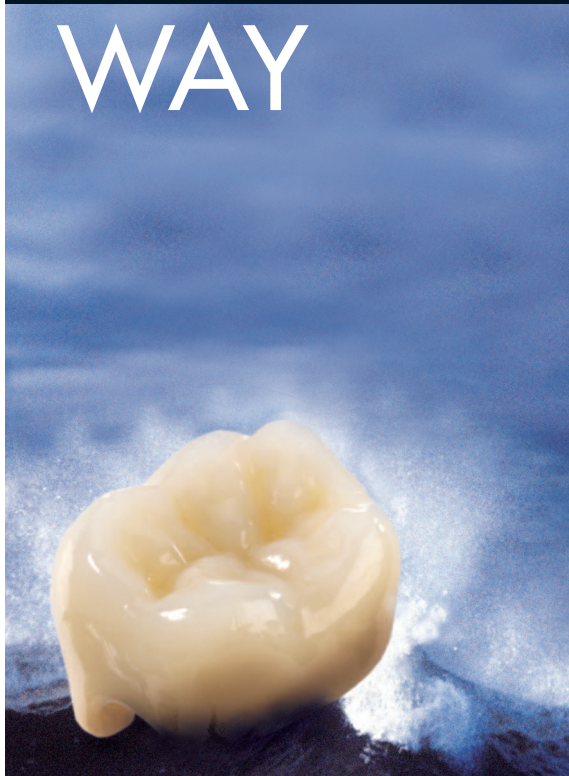


THE  
SAFE  
WAY



HMP<sup>®</sup>-N

Highly Modified Polymer-Network



HIGH DEFINITION HMP-N<sup>®</sup>  
artebral HD



Mould Chart

# INNOVATIVE POLYMERS FOR COMBINATION PROSTHETICS

Contemporary removable prosthetics require intelligent materials. They should resist abrasion, without provoking potentially damaging hyperbalances and their consequences. On the other hand, they must be fracture-proof to guarantee a long wearing life in tertiary structures.

## HMP-N® HIGHLY MODIFIED POLYMER-NETWORK

HMP-N® is a dental material developed for implant-borne and periodontally supported prosthetics with biomimetic properties simulating nature.

Thanks to its homogeneous structure with finest crystalline filling material, the Highly Modified Polymer Network (HMP-N®) provides a balanced combination of properties.

- Resistance to wear to guarantee vertical support
- Shock-absorbing for impact and shear forces acting on the tooth
- Self-regulating biomimetic adaptation reduces hyperbalance contacts by individual "functional engraving"
- Homogeneous PMMA layering, therefore easy processing when producing prosthetics
- Resistance to plaque due to the uniform PMMA structure

## INTELLIGENT POLYMER WITH INNOVATIVELY HIGH DENSITY

The low, only about 4 % structure-forming, inorganic filler proportion, is bonded chemically by methacryl silane bridges with the surrounding PMMA resin matrix.

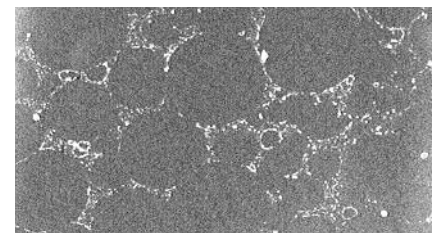
**Density and structure compensate for masticatory wear stresses just as much as shear loadings, which can lead to chipping.**

The innovative pairing of very fine, uniformly distributed inorganic filling material and matching spherical polymer macromolecules of different complexity reveal an innovative high density in polymers.

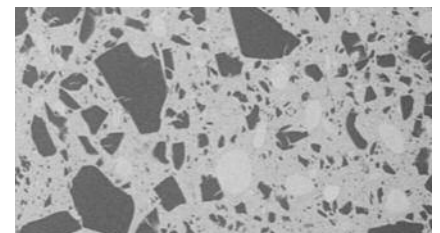
The high inorganic macro- and microfiller content can be recognized clearly in conventional composite dental materials. When separation occurs along the fillers, microcracks arise, which under force can cause fractures due to a "ladder effect". The hardest material is not always the best material.



HMP-N®  
Highly Modified Polymer-Network



Nano Filled Composite – Composite Dental Material



REM 900x Merz Dental Material Development



# SAFE

## WEAR-RESISTANT AND BIOMIMETIC

### RESISTANT TO WEAR AND ABRASION

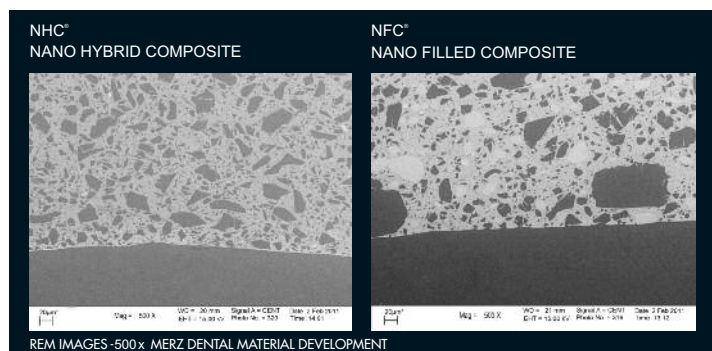
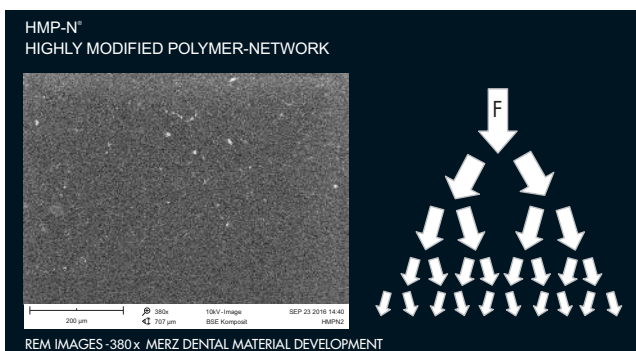
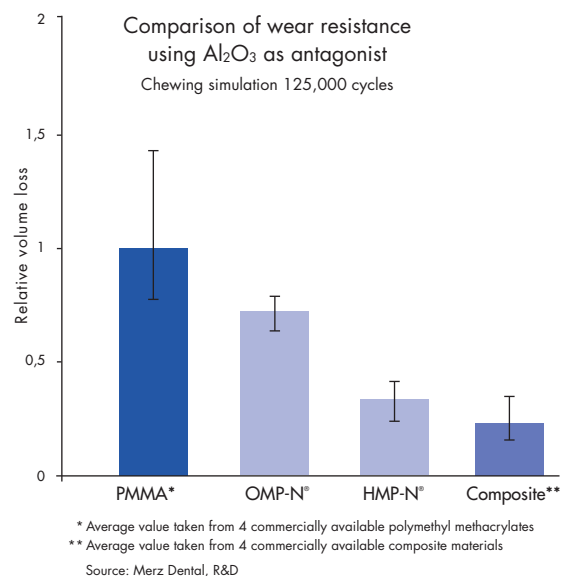
The homogeneous structure gives the HMP-N® very high resistance to wear compared with natural dental enamel. The resistance to abrasion of this Hybrid PMMA is almost identical to composite dental materials and allows biomimetic adaption to the individual "functional engraving" of lower tooth-guided movements.

### THE HARDEST MATERIAL IS NOT ALWAYS THE BEST

The inorganic filler proportion is very uniformly distributed and forms a homogenous chemically bonded structure with the PMMA.

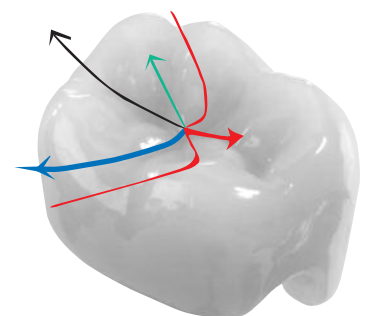
Forces are distributed uniformly in the material. "Ladder effects" and thus chipping are reduced.

The finer-grained the filling material, the higher the load bearing capacity of the dental material. HMP-N® is an innovative hybrid PMMA that fulfils this requirement.



### BIOMIMETIC: SELF-REGULATING ADAPTATION TO THE OCCLUSION PATTERN

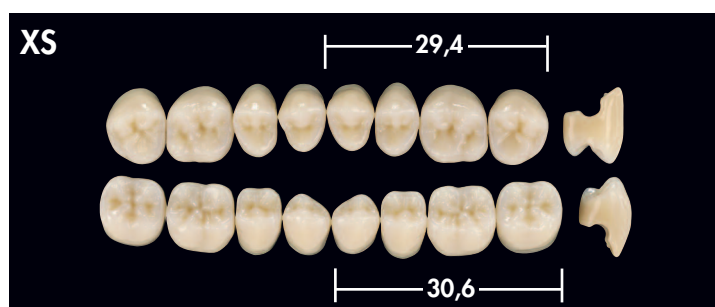
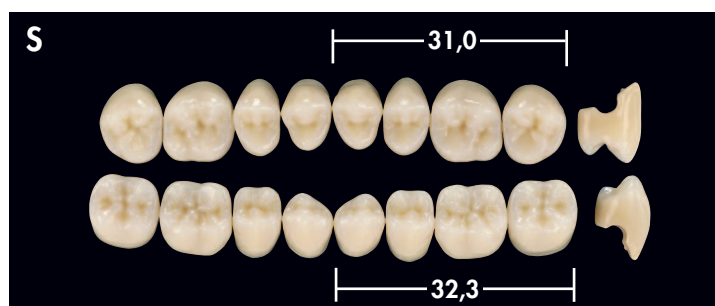
HMP-N® is not brittle, it facilitates adaptation to the tooth-guided movement paths analogously to the individual neuromuscular control. The material thus supports avoiding hyperbalances that can provoke parafunctions.



# THE FUNCTIONAL HIGH DEFINITION MICHELANGELO OF POSTERIOR



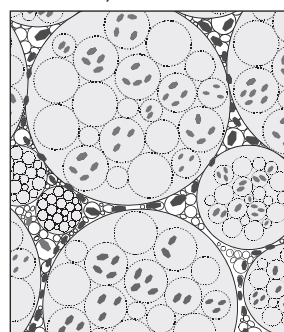
## HIGH DEFINITION HMP-N® artegral® HD



### THE POSTERIOR

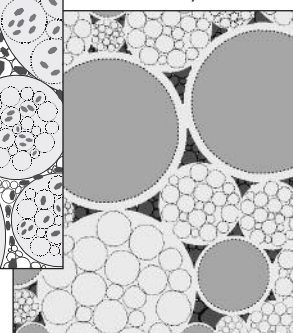
- Fully anatomical, cuspal inclination 25°
- Fully-contoured like a natural tooth
- Clear centrics for natural and artificial antagonists
- Time-saving handling: basal shape, integrated setting aid, Preventive Shift Groove® (PSG®)
- For every case the suitable choice of material: Posteriors made of HMP-N® and OMP-N®

HMP-N® Highly Modified  
Polymer-Network



inorganic filler

OMP-N® Organic Modified  
Polymer-Network



LAYER SCHEME

16 V-shades A1-D4  
4 Bleach-shades BL1-BL4

Merz Dental GmbH

Kieferweg 1 24321 Lütjenburg, Germany

Tel + 49 (0) 4381 / 403-0

Fax + 49 (0) 4381 / 403-403

www.merz-dental.de

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CE 0482