



# LEAD FREE COPPER ALLOYS FOR BIMETAL BEARINGS

Centre for Nanomaterials

International Advanced Research Centre for Powder Metallurgy and New Materials

Balapur PO, Hyderabad-500 005, India

## Overview

Bearings reduce friction between two objects, allowing moving parts to move more smoothly. These highly engineered and precision-made components enable machinery to move at extremely high speeds and carry remarkable loads with ease and efficiency.

So the challenge is bearings must be able to offer high precision, reliability and durability. Also it should have the ability to rotate at high speeds with minimal noise and vibration. ARCI's new technology will provide solution for the above mentioned challenges.

## Key Features

- Make-in-India
- Elimination of lead as per B-4 emission norms
- Yield Strength: 450 MPa (BMC840), 470 MPa (BMC841)
- Hardness: 119 HVN (BMC840), 127 HVN (BMC841)
- Wear Resistance: 18 $\mu$ m/h
- Fatigue Strength: 110 MPa

## Technology Specifications

- Main bearings and connecting rod bearings for heavy duty vehicles
- Cars and motor cycle bearings
- Transmission and hydraulic pump bushings
- Wear plates
- Camshaft bushings for medium size vehicles



Bimetal Copper-based Bushes and Bearings

## Technology Status

- Technology has been transferred to Bimetal Bearings Limited on non-exclusive basis
- The technology is ready for transfer

### \*Intellectual Property Development Indices

IPDI	1	2	3	4	5	6	7	8	9	10
Activities	Basic concepts and understanding of underlying scientific principles	Shortlisting possible applications	Research to prove technical feasibility for targeted application	Coupon level testing in stimulated conditions	Check repeatability/consistency at coupon level	Prototype testing in real-life conditions	Check repeatability/consistency at prototype level	Reassessing feasibility (IP, competition technology, commercial)	Initiate technology transfer	Support in stabilizing production
Status										