



# Superior Friction in Overloaded Conditions

## Phenolic Resins for High Friction Applications

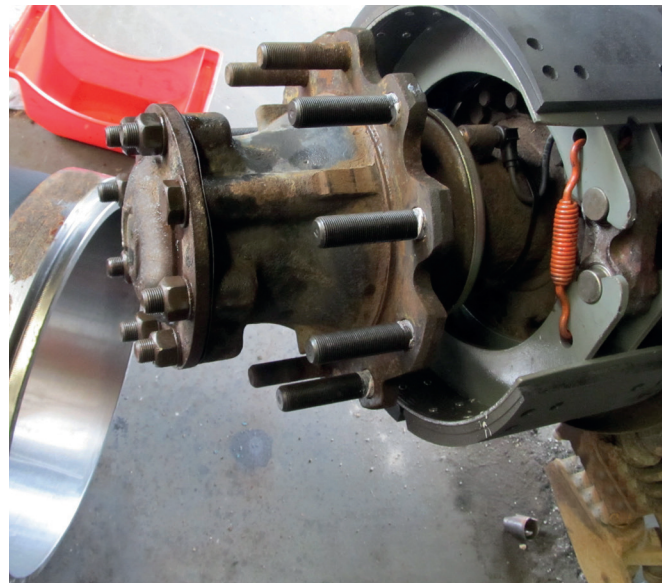
The overloading of trucks is a reality in many parts of the world. In order to ensure effective braking performance under excessive load conditions, it is imperative that the friction element generates a high friction coefficient. It is also essential to achieve an acceptable balance of other properties such as fade resistance, friction element wear, and counter-face wear. The new phenolic resin technology provides the following attributes:

- High friction coefficient
- Stable friction coefficient in low temperature range
- Good recovery of friction coefficient after cooling
- Mild abrasion

ASK Chemicals' phenolic resin technology provides superior performance for friction elements in overloaded conditions.

### Resin Properties

Resin grades can be tailor-made to the required specifications of customers, varying in flow, cure time, and hexamine content. The resins must be stored away from heat sources and moisture.



## Formulatory Guidelines

High-friction resins are ideal for use in, but not limited to:

- Medium and large linings for trucks and buses
- Disc brake pads for buses
- Disc brake pads for use in mountainous areas
- Heavy-freight rail blocks
- High-speed heavy-freight rail blocks

The new resins present superior performance in the following formulations:

- Ceramic & NAO
- Metallic
- Copper-free

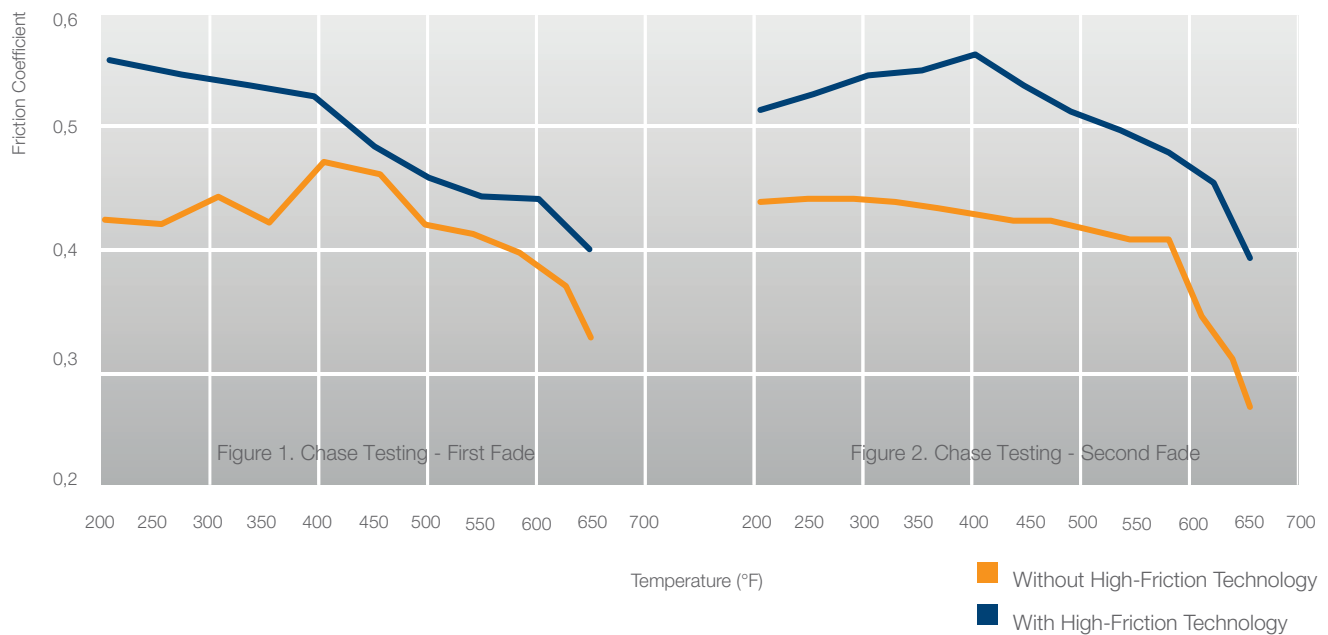
## Starting Formulation

The following starting formulation is indicative only, and is not adapted for commercial production.

Low-Metallic Truck Lining	kg
Mineral and glass fiber	27
Steel wool	10
Brass powder	5
Barytes	15
Graphite	5
Friction Dust	10
Calcium Carbonate	11.5
Phenolic Resin	16.5

## Chase Test Results

Friction elements were subjected to chase testing according to the SAE J661 procedure. The performance of phenolic resin with and without the new technology was compared. The new technology showed a marked increase in the friction coefficient across the temperature range.



### What this means for you

ASK Chemicals' phenolic resins for demanding applications are a superior solution when seeking a good balance in the tribological properties of high-friction elements. Contact your local sales representative to learn more.