



FDA COMPLIANT COMPOSITE BEARINGS INCREASE MTBF IN MIXER APPLICATION

CUSTOMER GOALS

A sugar producer in Germany wanted to increase the MTBF (mean time between failure) of his mixer (atomizer) to three months to avoid bi-weekly or monthly shut downs and start ups of the equipment.

APPLICATION

The lead bushing was located in the lower part of an atomizer.

CHALLENGE

Due to the movement of the shaft in the mixer and its stress in starts and stops, the customer needed to replace its original carbon bearings every two to four weeks. Because carbon is a very rigid material, pieces of the bearings splintered off, fell into the aqueous sugar mix, and remained in the fluid as black carbon particles. In addition, the customer was unaware of any FDA-compliant wear material that could be used in a mixer application for food processing. As a result, the mixer was shut down every two – four weeks and emptied in order to access the shaft and the bearing for repair.

Technical Data

Rotating equipment:	U.S. mixer manufacturer Niro (atomizer F35, type ABC-06, model 1978)
Material of housing:	Metal
Former product:	Hard-carbon bearings
Length of bushing:	.87 inches (22 mm), one bushing per mixer (two mixers in total)
New product:	FDA-compliant wear material WR® FP100
Media:	Water with sugar particles, different contents, different phases (liquid/solid)
Temperature:	68°F to 176°F (20°C to 80°C)
Capacity:	Up to 15,000 rpm and 1.350 to 1.460 l/h flow rate
Diameter:	Housing: 1.6 inches (40 mm), shaft: 1 inch (25 mm)

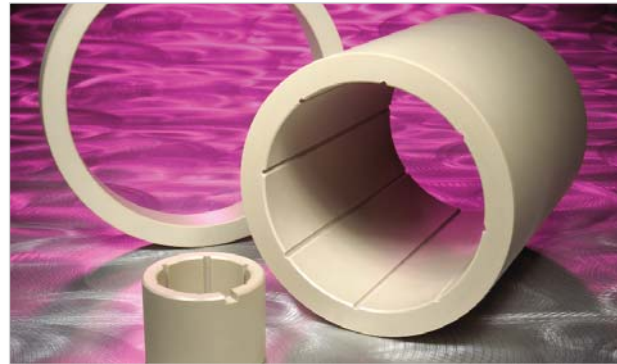
SOLUTION

The customer decided to replace traditional carbon bearing material with FDA compliant WR® FP100 bearings

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WR FP100

BENEFITS

WR FP100's FDA compliance—Gives the customer security to meet hygienic operational standards for food applications

Improved reliability/MTBF—The mixer's MTBF increased to three months. The mixer continues to run smoothly since last retrofit in August 2006 because of WR FP100's superior strength, ductile (shock absorbing) qualities and impact resistance. An MTBF greater than three months is always achieved in this application.

Impact Resistance—Excellent physical properties allow bearings to receive impact from the shaft or shaft sleeve without breaking or cracking during operation. Splinters no longer enter the water/sugar mix anymore.

RESULTS

WR materials provide outstanding operational characteristics that increase reliability, including extending bearing life and reducing the risk of failure. This helps run equipment on a scheduled prevented maintenance basis. The customer has been retrofitting the WR materials every three months since fall 2005 and has noticed a considerable improvement. Typically abrasive media with variable particle sizes act like "sand paper" on the bearing material yet WR continues to operate effectively in these challenging conditions.

Statements and recommendations in this publication are based on our experience and knowledge of typical applications of this product and shall not constitute a guarantee of performance nor a modification or alteration of our standard warranty which shall be applicable to such products.