FEDERATED No. 3 BEARING ALLOY

NOMINAL COMPOSITION

Tin 83.33%
Antimony 8.33%
Copper 8.33%

MANUFACTURING LIMITS

Tin 82.33–84.33%
Antimony . . . . . 7.5 – 9.0%
Copper . . . . . 7.5 – 9.0%
Lead . . . . . 0.35% Max.
Iron . . . . . 0.08% Max.
Arsenic . . . . . 0.10% Max.
Zinc . . . . . None *
Aluminum . . . . . None *

Small amounts of Nickel and Tellurium may be added.
* Defined as 0.005% as determined on a 10 gram sample.

PROPERTIES

Solidus Temperature	240°C.	464°F.
Liquidus Temperature	422°C.	792°F.
Approx. Pouring Temperature . . .	490—540°C.	900—1000°F.
Specific Gravity	7.46	
Weight per cubic inch . . .	0.269 lbs.	

BRINELL HARDNESS (B.H.N.)

Tested with a 10 mm. ball and a 500 kg. load applied for 30 sec.

	At 86°F.		At 302°F.		
As Cast	After 7 days at 302°F.	After 46 days at 302°F.	After 17 hours at 302°F.	After 7 days at 302°F.	After 46 days at 302°F.
26	22.5	20	9.8	9.8	9.4

TENSILE STRENGTH (in Psi.)
ELONGATION (in 2" in percent)

At	77°F.	212°F.	302°F.	392°F.
T. S.	12,300	6,600	3,800	—
E.	2	8	28	—

COMPRESSIVE STRENGTH
At room temperature at 10% reduction in height under load . . . 16,875 psi.

FATIGUE STRENGTH, Rotating Beam Test
20,000,000 cycles at 2,000 cycles per minute . . . . . 3,600 psi.

This alloy is similar to the following specifications:
A.S.T.M. B23-26 Grade 3
U. S. Navy Dept. Spec. 46M2 Grade 3
Federal Spec. QQM161 Grade 3