Irregular, rough-grained or folded surface having a shrivelled appearance, often with a somewhat deeper network of grooves or wrinkles.

The defect is usually encountered on the upper horizontal (cope) surface of thick castings and is unique to magnesium-treated ductile iron.

Possible Causes
Compounds resulting from magnesium treatment (oxides, silicates, sulfides, etc.) usually form as films which are more or less dispersed through the metal. In the ladle, these films rise only slowly to the surface. When present in the metal poured, they may gravitate to the cope surface of the casting or, in the case of centrifugal castings, at the interior wall.

Remedies
- Use good quality charge materials containing a minimum of oxygen and sulfur (or desulfurize adequately).
- Pour using a teapot ladle.
- Use the least amount of magnesium required for treatment.
- Also prolong the holding time in the ladle after magnesium treatment.
- Control carbon content as a function of pouring temperature.

D 112 - Ductile Iron, Dry Sand, Centrifugal Casting

Interior surface of centrifugally-cast ductile iron pipe showing defect D 112.