SURFACE OR SUBSURFACE BLOWHOLES

Cavities whose walls are generally smooth and rounded, often in the form of flattened bubbles with rounded or angular corners, located either singly or in groups at or near the surface of the casting.

The cavities are sometimes exposed to the surface, but most often are located beneath a thin layer of metal and cannot be seen until after blast cleaning or machining; they may sometimes appear as shiny spots on the casting at shakeout.

Possible Cause
- Insufficient permeability of mold or cores.
- Pouring too slowly or too cold.
- Insufficient height of runners and risers.
- All the causes for B 111 (blowholes).
- In die casting: entrainment of air, die temperature too high (in conjunction with elevated metal temperature); vaporization of die lubricants.
- Air and gas bubbles which gravitate to the upper surface of the casting but are unable to escape, either because of lack of mold permeability or because of a presolidified skin on the casting.

Remedies
- Guard against the possible causes
- In die casting:
  • adjust mold and metal temperature,
  • lubricate die in moderation,
  • provide mold temperature regulation,
  • use applied vacuum.

Gray iron casting with surface blowholes caused by incorrect running and gating system and by improper venting.
Also present is defect G 121 (slag inclusions), but not defect G 122 nor B 113 (slag blowholes).

Cast Iron gear box with surface blowhole: increase venting.  
(Further examples, p. 94)