

Corrosion Glossary

backfill

Material placed in a drilled hole to fill space around anodes, vent pipe, and buried components of a cathodic protection system.

bainite

A metastable aggregate of *ferrite* and *cementite* resulting from the transformation of *austenite* at temperatures below the *pearlite* range but above *M* the martensite start temperature. Bainite formed in the upper part of the bainite transformation range has a feathery appearance; bainite formed in the lower part of the range has an acicular appearance resembling that of tempered martensite.

banded structure

A segregated structure consisting of alternating nearly parallel bands of different composition, typically aligned in the direction of primary hot working.

base

A chemical substance that yields hydroxyl ions (OH⁻) when dissolved in water. Compare with *acid*.

base metal

(1) The metal present in the largest proportion in an alloy; brass, for example, is a copper-base alloy. (2) An *active metal* that readily oxidizes, or that dissolves to form ions. (3) The metal to be brazed, cut, soldered, or welded. (4) After welding, that part of the metal which was not melted.

beach marks

Macroscopic progression marks on a fatigue fracture or stress-corrosion cracking surface that indicate successive positions of the advancing crack front. The classic appearance is of irregular elliptical or semielliptical rings, radiating outward from one or more origins. Beach marks (also known as clamshell marks or arrest marks) are typically found on service fractures where the part is loaded randomly, intermittently, or with periodic variations in mean stress or alternating stress. See also *striation*.

biaxial stress

See *principal stress (normal)*.

bimetallic corrosion

(Galvanic Corrosion) Corrosion resulting from dissimilar metal contact.

biological corrosion

Deterioration of metals as a result of the metabolic activity of microorganisms.

bipolar electrode

An *electrode* in an *electrolytic cell*

black liquor

The liquid material remaining from pulpwood cooking in the soda or sulfate paper-making process.

black oxide

A black finish on a metal produced by immersing it in hot oxidizing salts or salt solutions.

blister

A raised area, often dome shaped, resulting from (1) loss of adhesion between a coating or deposit and the base metal or (2) delamination under the pressure of expanding gas trapped in a metal in a near-subsurface zone. Very small blisters may be called pinhead blisters or pepper blisters.

blow down

(1) Injection of air or water under high pressure through a tube to the anode area for the purpose of purging the annular space and possibly correcting high resistance caused by gas blocking. (2) In connection with boilers or cooling towers, the process of discharging a significant portion of the aqueous solution in order to remove accumulated salts, deposits, and other impurities.

blue brittleness

Brittleness exhibited by some steels after being heated to a temperature within the range of about 200 to 370 °C (400 to 700 °F), particularly if the steel is worked at the elevated temperature.

blushing

Whitening and loss of gloss of a usually organic coating caused by moisture. Also called blooming.

brackish water

(1) Water having salinity values ranging from approximately 0.5 to 17 parts per thousand. (2) Water having less salt than seawater, but undrinkable.

breakdown potential

The least noble potential where *pitting* or *crevice corrosion*, or both, will initiate and propagate.

brightener

An agent or combination of agents added to an electroplating bath to produce a smooth, lustrous deposit.

brine

Seawater containing a higher concentration of dissolved salt than that of the ordinary ocean.

brittle fracture

Separation of a solid accompanied by little or no macroscopic plastic deformation. Typically, brittle fracture occurs by rapid crack propagation with less expenditure of

that is not mechanically connected to the power supply, but is so placed in the electrolyte, between the *anode* and *cathode*, that the part nearer the anode becomes cathodic and the part nearer the cathode becomes anodic. Also called intermediate electrode.

bituminous coating

Coal tar or asphalt-based coating.

energy than for *ductile fracture*.

burning

(1) Permanently damaging a metal or alloy by heating to cause either incipient melting or intergranular oxidation. See also *over-heating*. (2) In grinding, getting the work hot enough to cause discoloration or to change the microstructure by tempering or hardening.