Classification of Common Imperfections in Sheet Steel—SAE J810 JUN80

SAE Information Report
Completely Revised June 1980

THIS IS A PREPRINT WHICH IS SUBJECT TO REVISIONS AND CORRECTIONS. THE FINAL VERSION WILL APPEAR IN THE 1981 EDITION OF THE SAE HANDBOOK.

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PREPRINT

CLASSIFICATION OF COMMON IMPERFECTIONS IN SHEET STEEL—SAE J810 JUN80

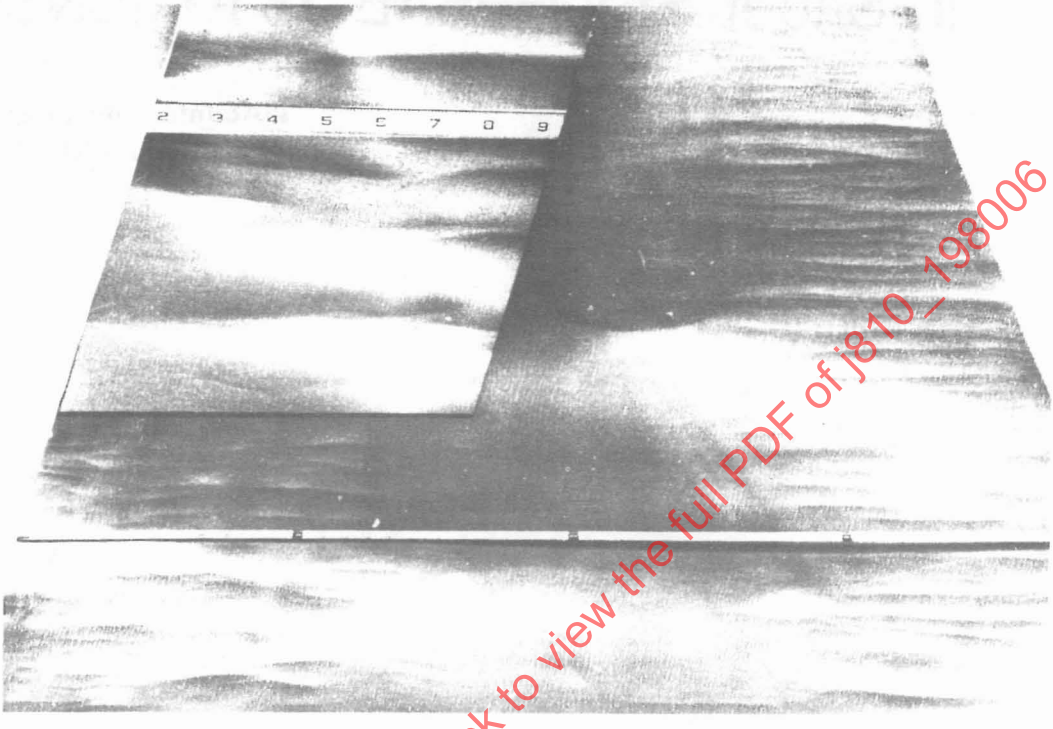
SAE Information Report

Report of the Iron and Steel Technical Committee, approved April 1956, completely revised June 1980.

Common or obvious surface imperfections, which sometimes occur in sheet steel, are normally visible to the naked eye before or after fabrication. Illustrations and definitions of these imperfections are contained in this SAE Information Report. The identifying names are those commonly used throughout the steel industry. These imperfections are variable in appearance and severity. Extreme conditions have been selected in some instances in order to obtain suitable photographs.

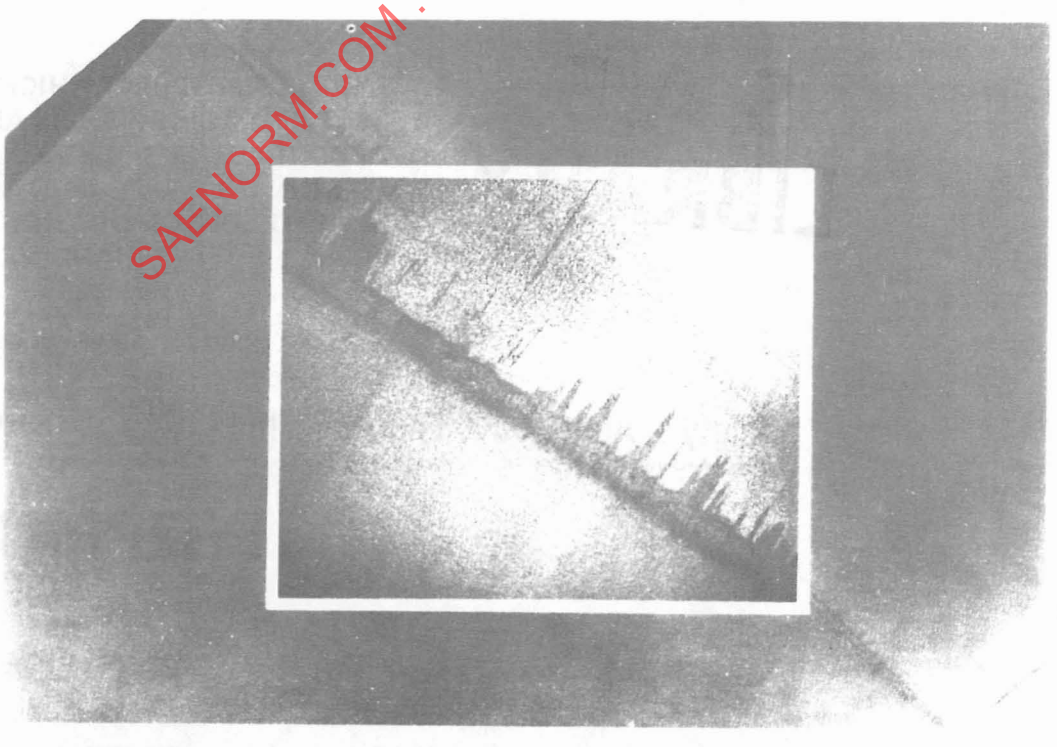
Photographs are courtesy of the American Iron and Steel Institute, Steel Products Manual covering Sheet Steel; Carbon, High Strength Low Alloy, and Alloy; Copyright 1979.

The ϕ symbol is for the convenience of the user in locating areas where technical revisions have been made to the previous issue of the report. If the symbol is next to the report title, it indicates a complete revision of the report.



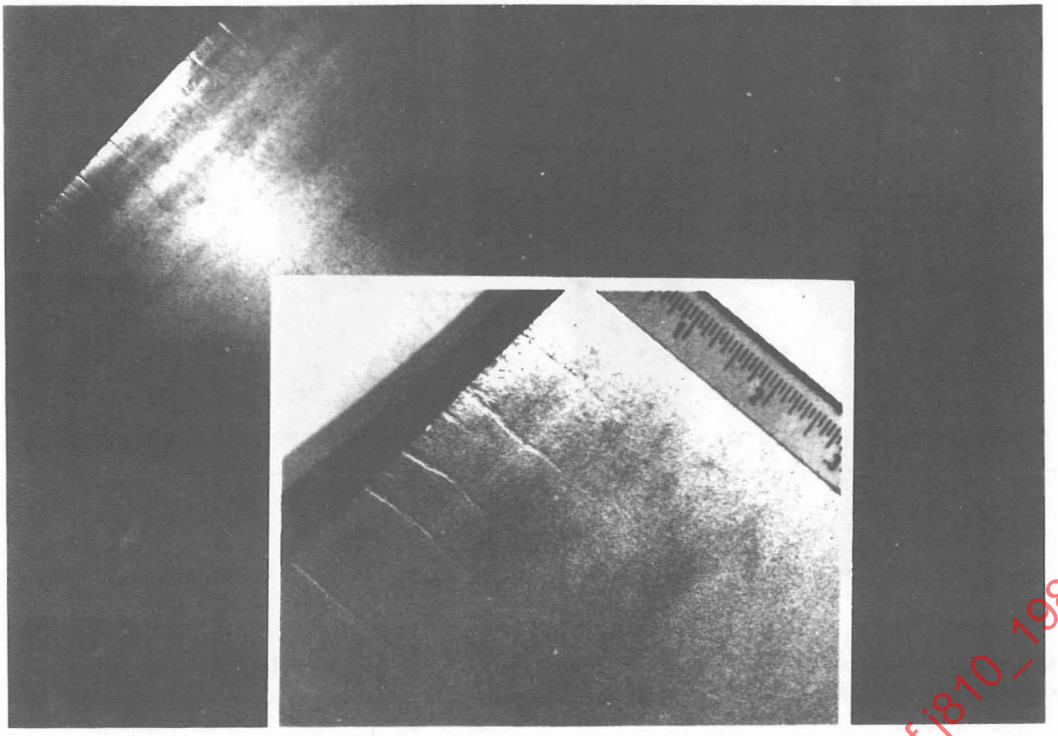
ROLLING DIRECTION

COIL BREAKS—Coil breaks are creases or ridges which appear as parallel lines, transverse to the direction of rolling, and which generally extend across the width of the sheet.



ROLLING DIRECTION

COIL WELD—A coil weld is a joint between two lengths of metal within a coil. Coil welds are not always visible in the cold reduced product.

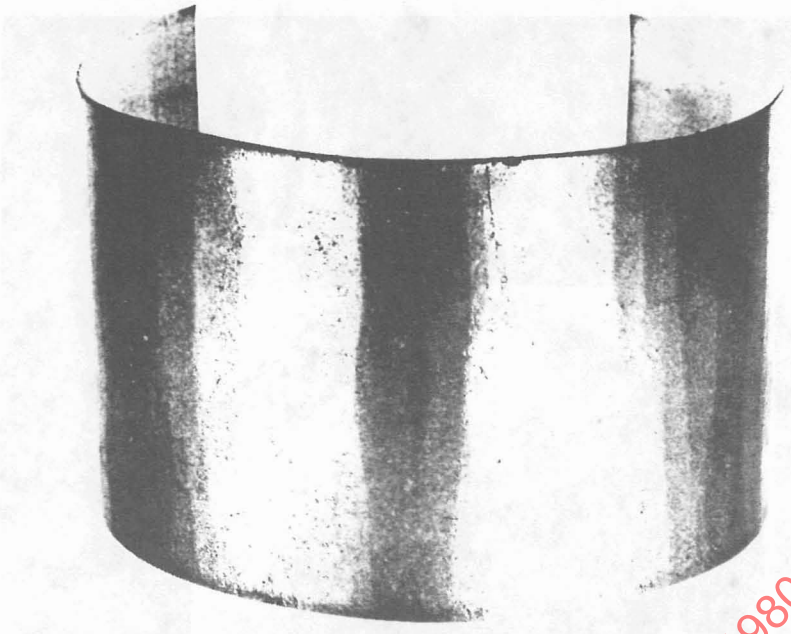


ROLLING DIRECTION

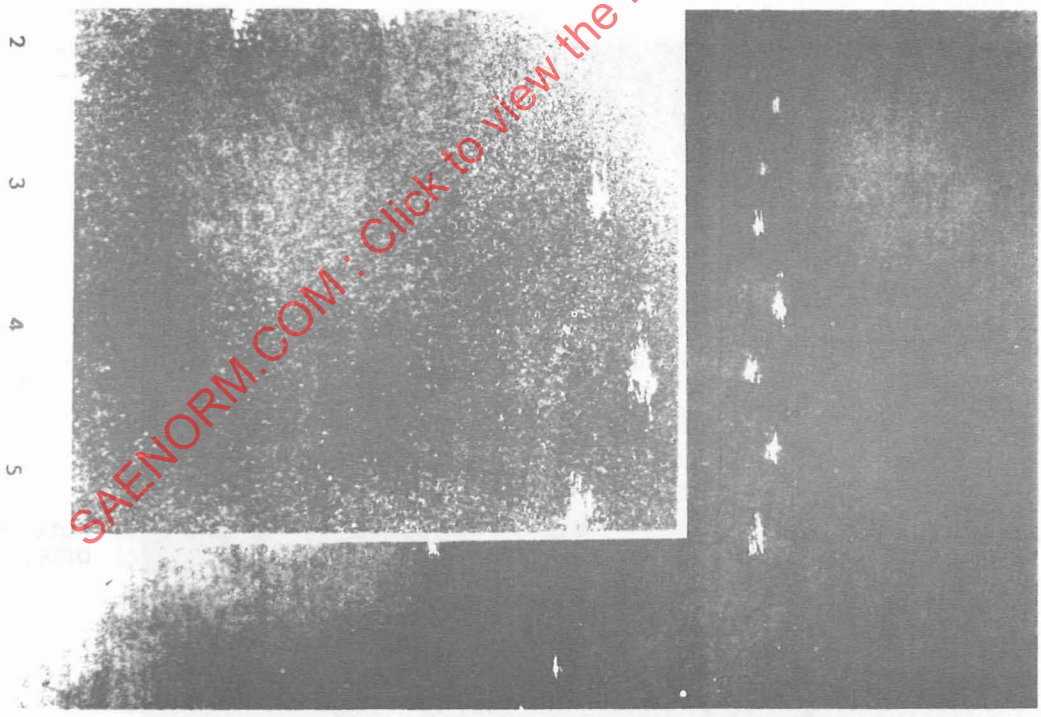
EDGE BREAKS—Edge breaks are short creases which extend in varying distances from the side edge of the temper rolled sheet.

ROLLING DIRECTION

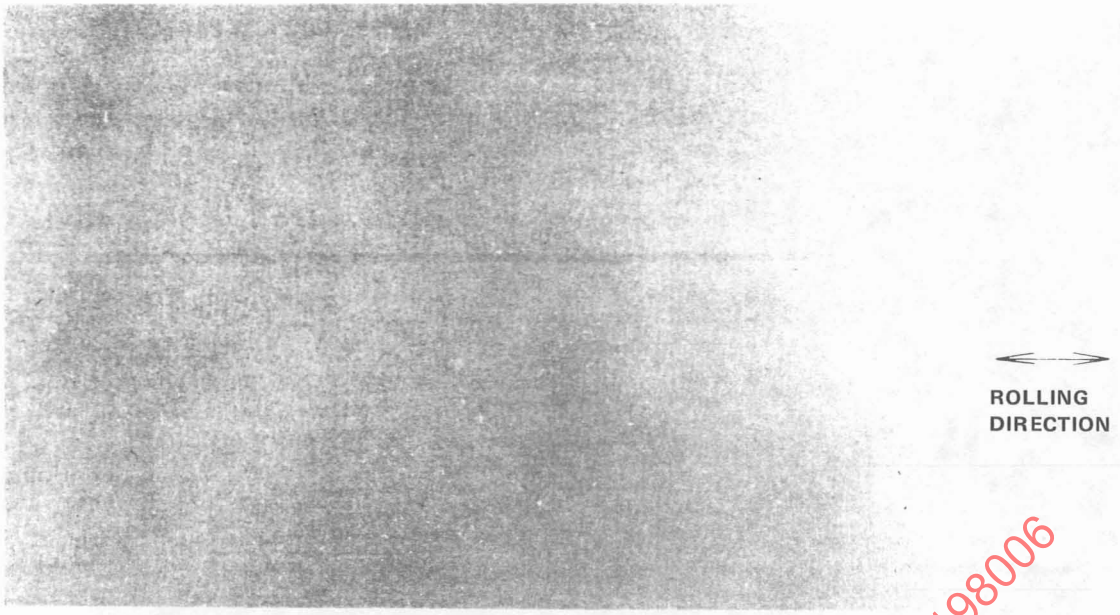
FLOPPERS—Floppers are lines or ridges which are diagonally transverse to the direction of rolling and generally confined to the section midway between the edges of a coil as rolled. They are somewhat irregular and tend toward a flat arc shape.



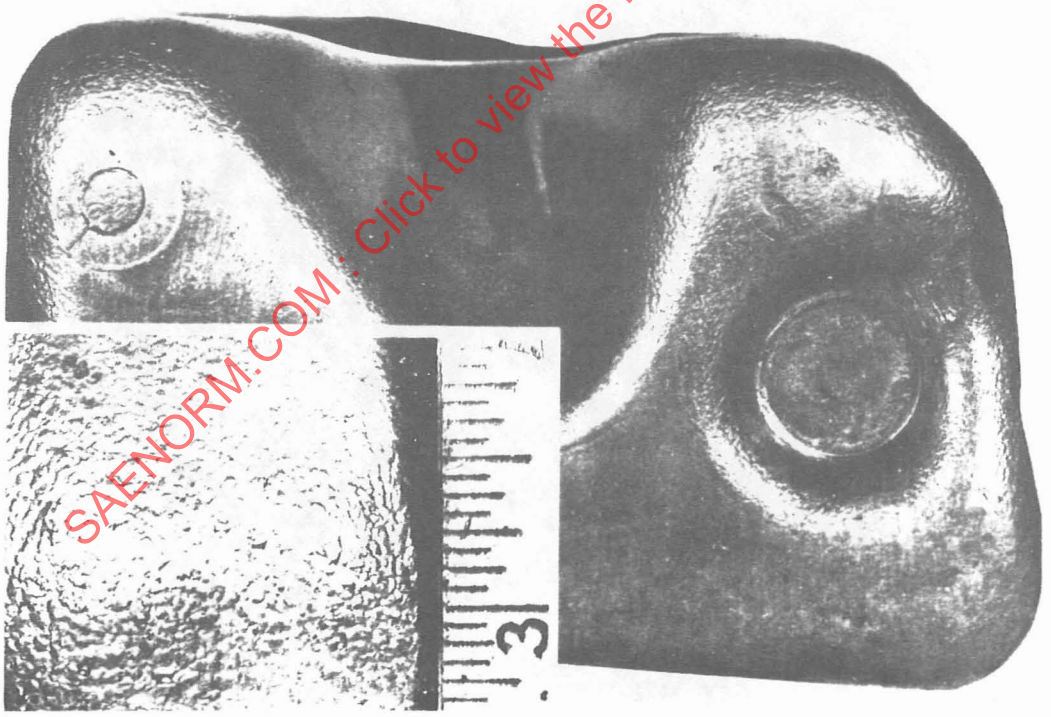
FLUTING—Fluting is a series of sharp parallel kinks or creases occurring in the arc when sheet steel is formed cylindrically. Photograph shown above is from a test specimen.



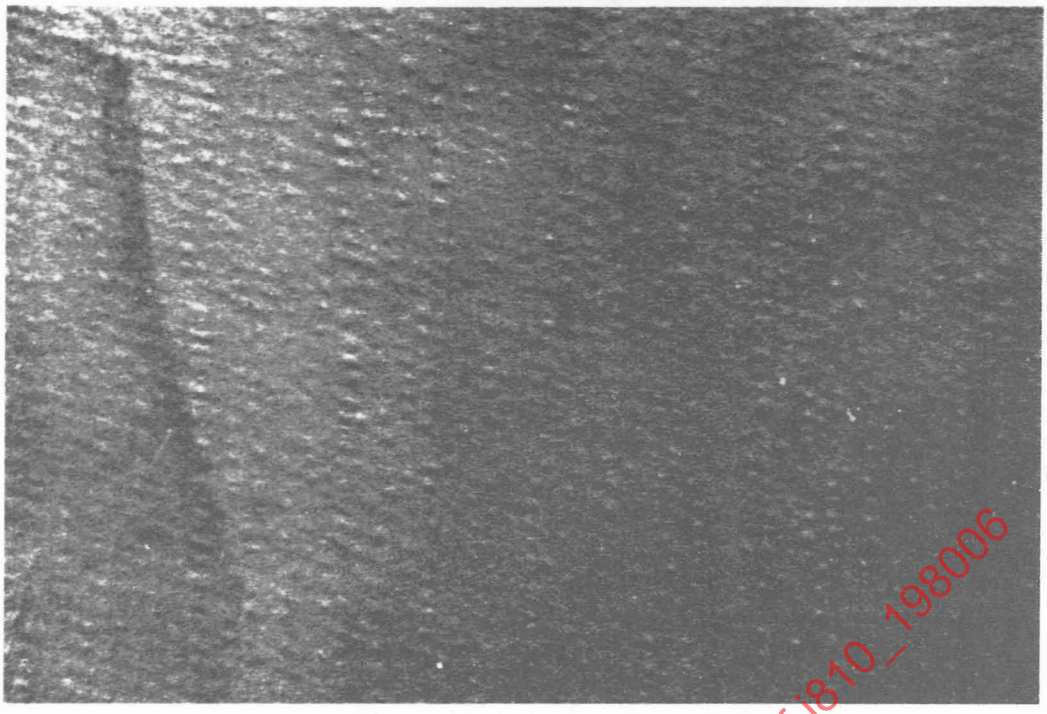
FRICTION DIGS—Friction digs are a series of relatively short scratches variable in form and severity.



HEALED-OVER SCRATCH—Healed-over scratch is a scratch that occurred in an earlier mill operation and was partially masked in subsequent rolling. It might open up during forming.

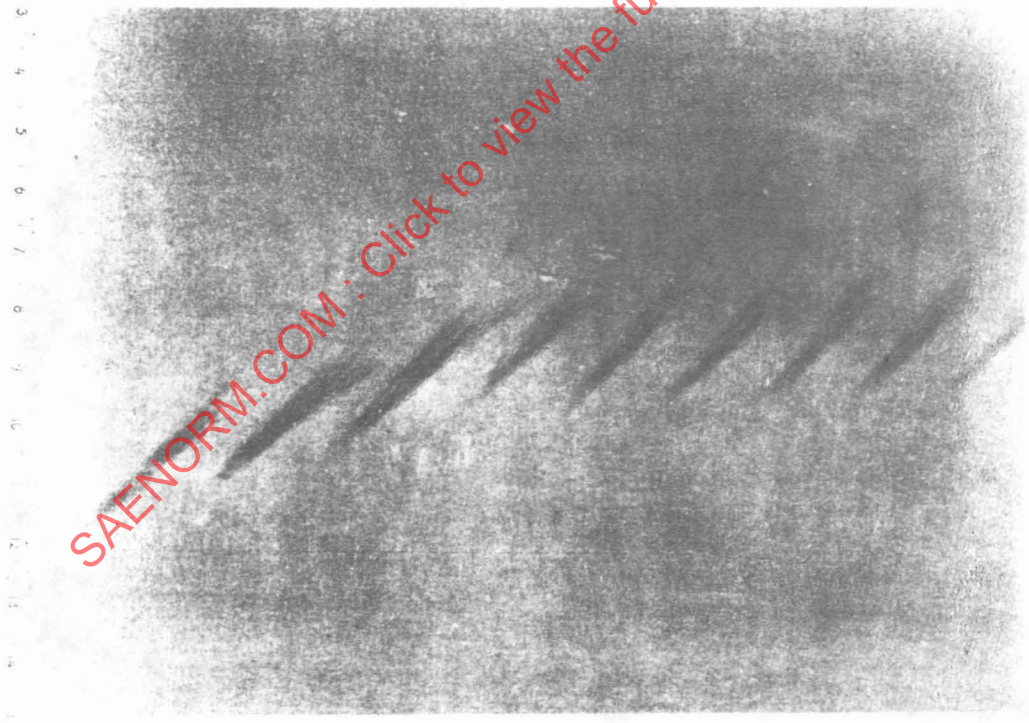


ORANGE PEEL—Orange peel is a coarse grain condition which becomes evident during drawing.



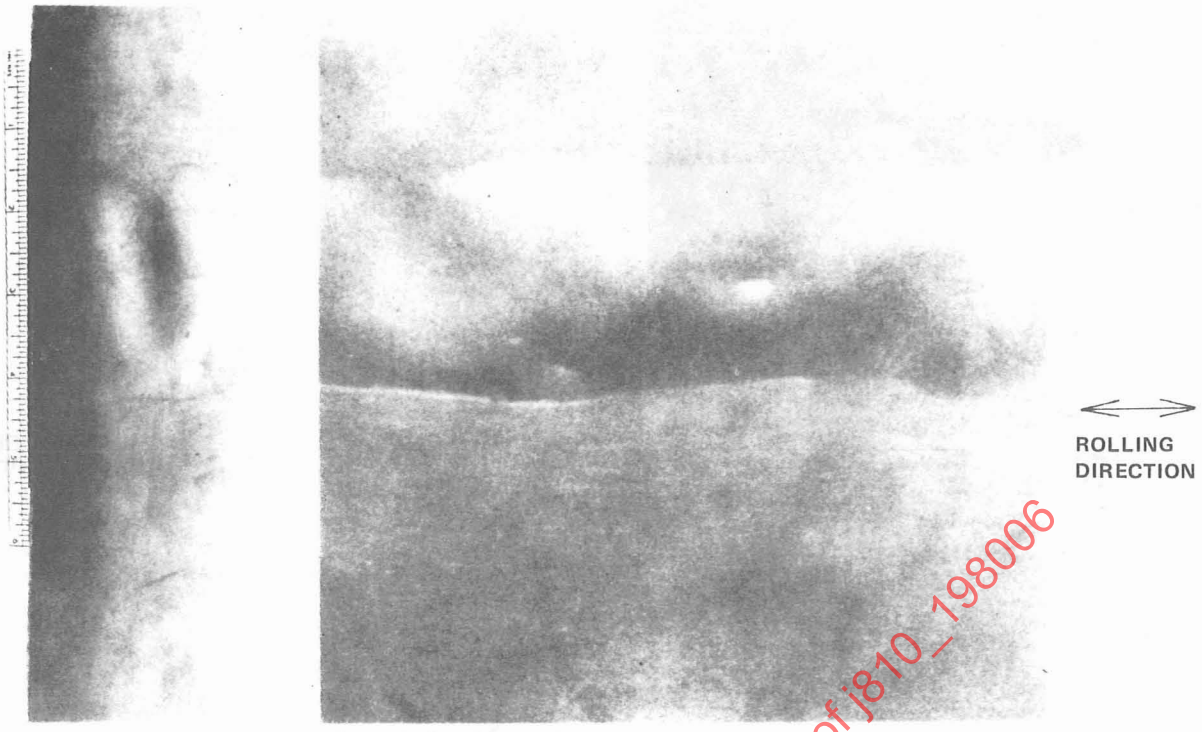
ROLLING DIRECTION

ORANGE PEEL STRAIN—Orange peel strain is a pebbly surface condition which develops during drawing.

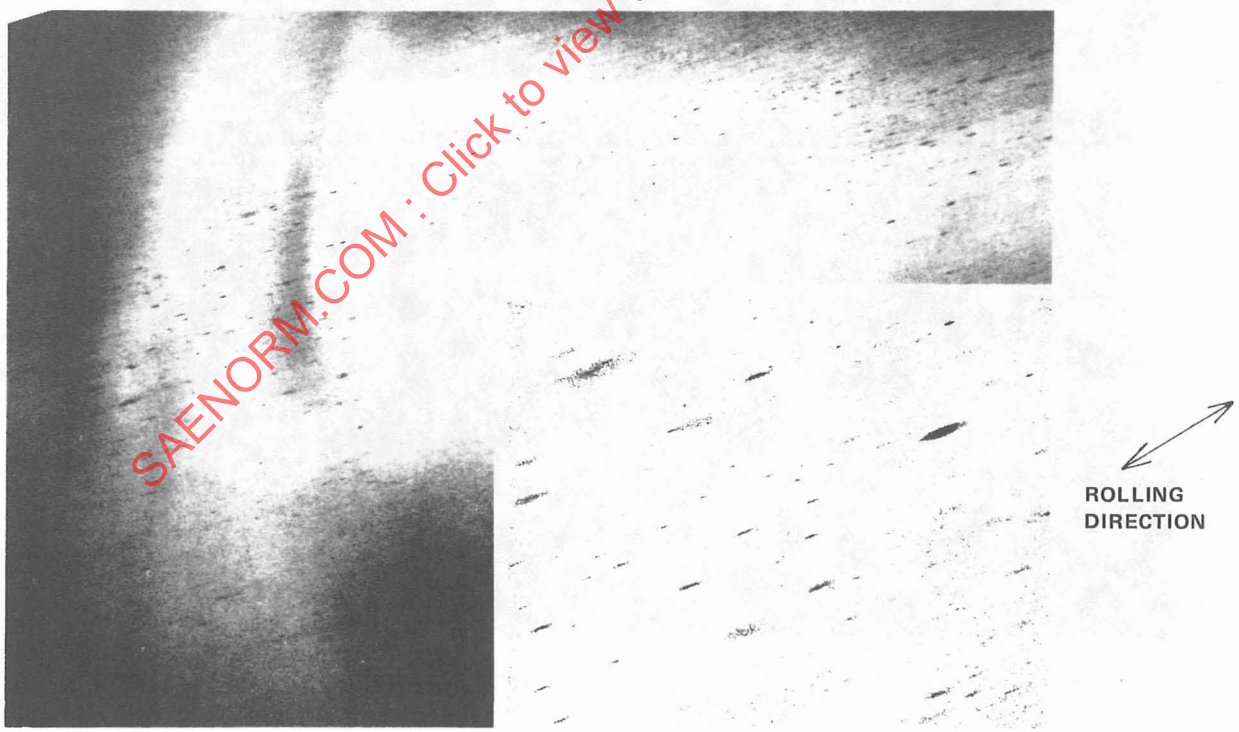


ROLLING DIRECTION

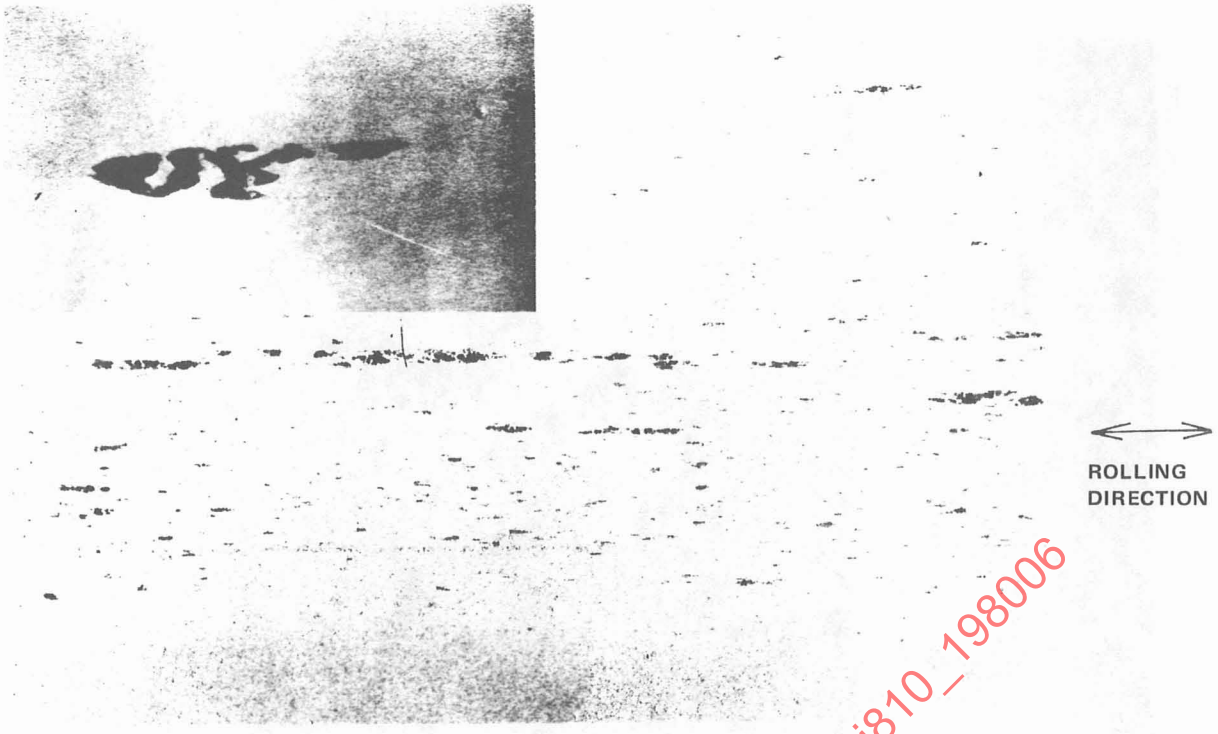
PINCHERS—Pinchers are fern-like ripples or creases usually diagonal to the rolling direction.



PIPE LAMINATION—Pipe lamination is a separation midway between the surfaces containing oxide inclusions.

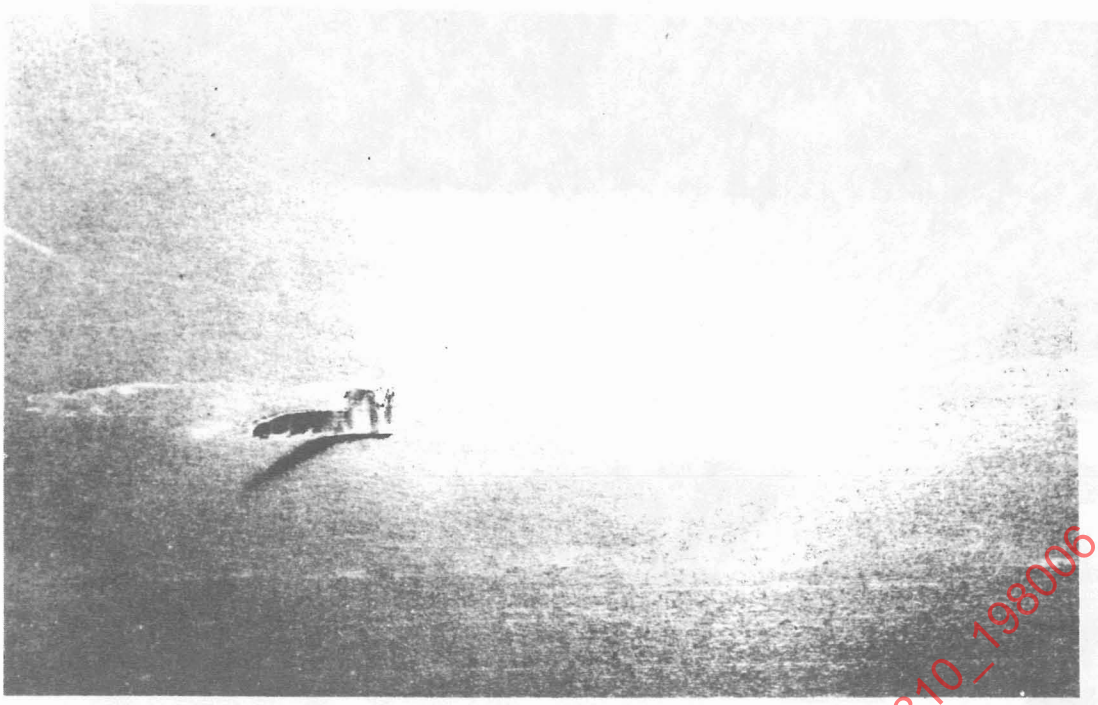


ROLLED-IN DIRT—Rolled-in dirt is extraneous matter rolled into the surface of the sheet.



ROLLED-IN SCALE—Rolled-in scale consists of scale partially rolled into the surface of the sheet.

SKIN LAMINATION—Skin lamination is a sub-surface separation which usually results in a surface rupture.



ROLLING DIRECTION

SLIVERS—Slivers are surface ruptures somewhat similar in appearance to skin laminations but usually more prominent.

ROLLING DIRECTION

STICKER BREAKS—Sticker breaks are arc-shaped types of coil breaks usually located near the middle of the sheet.