

Development of Surface Treatment Techniques for Process Rolls in Steelworks*

Hot process rolls

Cold process rolls

Sink rolls for

Table 3. Requirements for rolls used in continuous casting and hot rolling processes and develop-

ment of surface quality material

Requirements*1)			Development	
Heat checks	Wet corrosion	Adhesion resist.	Development	Development

filler metal which combines corrosion resistance and
back resistance. This material is based on 12Cr

Mo44). Since KOA-H3(L) is used as an underlaying
material, cracks are dispersed and their depth is

stainless steel⁵⁾ which is known to have excellent corro-
sion and erosion resistance, and its corrosion resistance

so that roll breakage due to continuation of cracks has
been completely eliminated. As a result, the life of the

Table 4 Comparison of grinding ratio between carbon steel roll and surface welding roll at No.1 hot strip mill

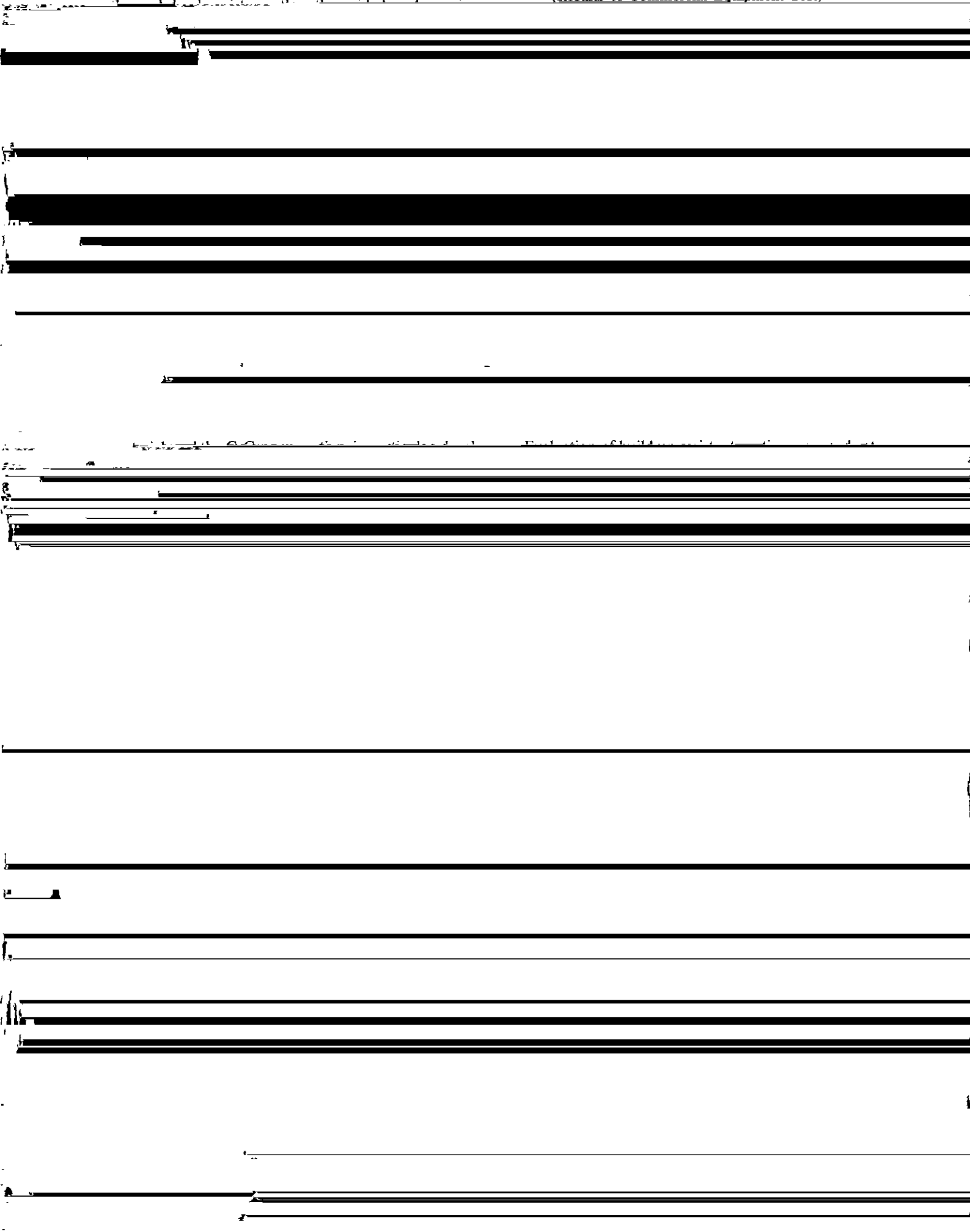
Equipment	Roller table	Reversing mill	Roller table	Crop shear
Requirements and results of test				
Corrosion resistance	—	○	—	—
Hardness	○	●	○	—
Requirement*	○	●	○	—

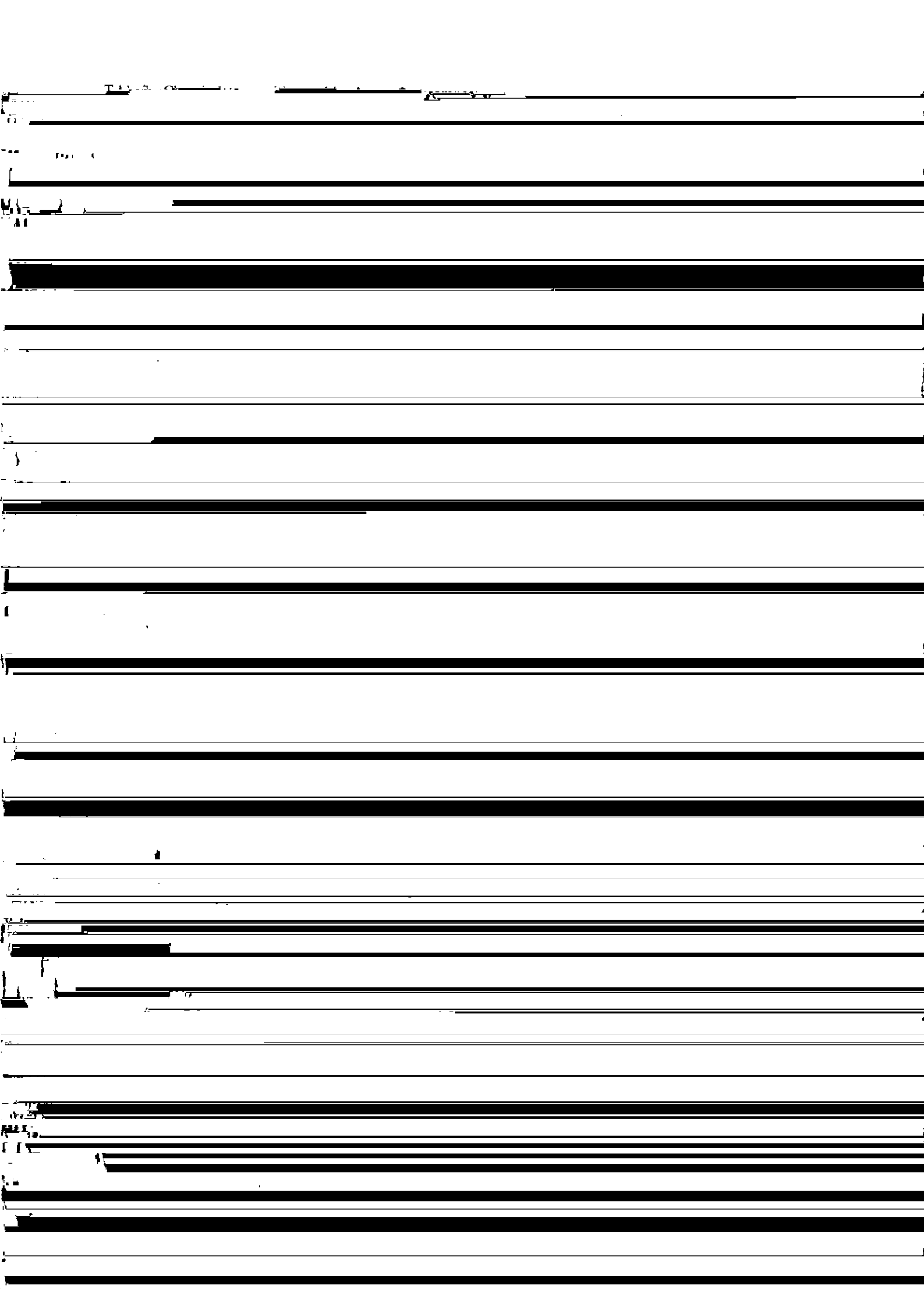
Table 5. Compositions of base metal and thermal

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by one or two repetitions of thermal shocks. Whereas the carbide-based cermet spray coating showed better

4.3 Evaluation of Build-up Resistant Coating (Results of Commercial Equipment Test)





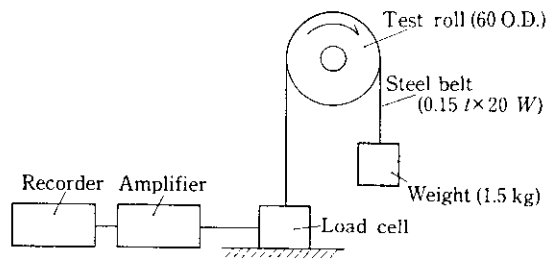
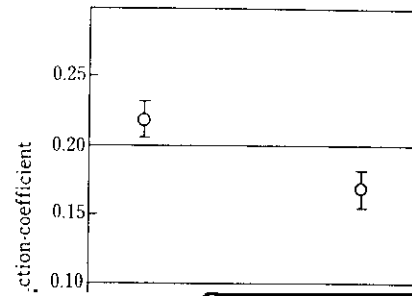


Fig. 1 Outline of testing machine for friction test.



surface treating techniques suited to the requirements are summarized as follows:

- (1) For rolls to be used in the hot-working process, commercial manufacture of the following have been

the authors will endeavor to develop new coating materials and study new surface treatment techniques in the future.

Finally, the authors would like to express their deep appreciation to the staff members of Union Carbide