



**2nd INTERNATIONAL SCIENTIFIC
AND TECHNICAL INTERNET CONFERENCE
“INNOVATIVE DEVELOPMENT OF
RESOURCE-SAVING TECHNOLOGIES OF
MINERAL MINING AND PROCESSING”**

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IMPROVEMENT OF WELDED PIPE JOINTS FOR MINING EQUIPMENT

Mining enterprises use many steel pipes for pumping sludge from ore dressing waste. These pipes are often repaired by welding. This work requires a lot of time and high quality connections. In this regard, the research below have been performed.

The macrographic examinations enabled us to conclude that, the weld bead has a satisfactory penetration lacking defect. They confirm the visual examinations which reveals a regular cord and of beautiful aspect. It is noticed that the heat treatment does not change the macrographic structure except on the level of dimensioning of the grains. This obliges someone to see the size and the nature of the grains by micrographic examinations. The zone of connection is the seat of a thermal contribution in short and rather important conditioning the enlargement of the grains and the formation of an acicular structure, It is thought that the zone of overheating is the seat of structures which have the reduced plastic properties of the welding and weaken the structure slightly. The structure of our product after welding is primarily ferritic with some small islands or beaches of pearlite (percentage of weak carbon).

External master keys (4th and 5th) where the cooling speed is more important, give a needle structure characteristic which is a ferrite out of balance.

Internal master keys (having undergone treatments of reheating give a regular structure of ferrite, the coalescent ferrite needles end in structures closer to the state of balance or in mixed textures). The lower part of the joint thus corresponds to heated master keys several times than zones regenerated (master keys 1 and 2), have a ferritic structure with regular grains. The weld bead presents broad zones affected by the heat which can be treated as being ZAT1 and ZAT2. The ZAT1 close to the zone of connection, where the tem-