

# EVALUATION OF SAFETY IN PRE-LOADING EMULSION EXPLOSIVES AT SULFIDE MINE

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**Abstract** A massive millisecond blast at an open-pit mine of large scale can be realized by using the blasting technology of pre-loaded explosives, which can enlarge production scale, reduce the frequency of blasting and of large production equipment movement, and raise the production efficiency. The reason why application of this technology is restricted at high sulfide ore deposits of variable and complex geological conditions is that an exothermic reaction will take place when explosives contact sulfide ores, which could lead to accidents such as spontaneous burning and detonation of explosives pre-loaded in boreholes, influencing blasting and production safety. The thermal decomposition reactions of emulsion explosives of different prescriptions in contact with pyrite have been studied by differential thermal analysis (DTA), kinetics parameters calculation and accelerating rate calorimetry (ARC), and on the basis of the above studies, the safety of emulsion explosives used in sulfide mines has been evaluated with the safe contact time of different emulsion explosives with pyrite determined.