

SAFETY CHALLENGES OF THE '90s

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INTRODUCTION

I would like to discuss today several safety topics that we at Nobel feel are going to be particularly critical to all of us who are involved in the manufacturing, transportation, storage and use of commercial explosives during the '90s. My purpose is to identify these topics in order to allow those in the commercial explosives community to better understand the potential difficulties we face.

Looking back and evaluating the progress, changes, and setbacks of the '70s and '80s, it is clear that we have enough information to be able to solve most, if not all, safety-related issues.

Incidents and related fatalities which occurred during the past several years clearly show that we need to be concerned not only with the sensitive products as dynamite or pentolite, but also with "relatively insensitive" products such as water gels and emulsions.

New emulsion technology is helping to make safer products compared to traditional dynamites. With the increasing sophistication of the emulsion technology, the industry is now able to make reliable cap sensitive products packed in cartridges under 1" diameter on one hand, and very insensitive bulk emulsions, classified as oxidizers, on the other side of the sensitivity scale. Because of this wide spectrum of properties, there are a variety of safety issues which may not yet be fully understood. These issues will be discussed in hopes of avoiding potential problems, loss of lives, as well as to help you hold down your insurance costs.

Emulsion formulations are no longer in their infancy stage. However, we will see many more new products being developed as the technology becomes more available to smaller regional producers.

From my visits and inspections of many locations where these products are being produced, handled, and used, it appears we can make several useful conclusions.

The most important safety concerns related to manufacturing and using commercial explosives in the '90s will be as follows:

1. Personnel
2. Equipment

3. Explosives Storage
4. Transportation
5. Manufacturing Technology
6. Environmental Issues
7. Product Liability