

BOX 2 Questions for Detection and Identification Taggant Concepts

Provide an overview of your taggant concept or technique. Is this taggant concept intended for pre-blast detection, post-blast identification, or both?

How does the technique work? How many unique taggants are possible? What is the information content of the taggant; e.g., how many years of unique identification taggants are possible at the proposed labeling rate? What level or concentration of taggant is needed (to survive a detonation and be collected)? How adaptable is the taggant to different explosive types? What is the cost of the taggant, e.g., cost per pound of taggant, cost of taggant per pound of explosive, other cost impacts such as process changes required?

How are taggant detection, collection, and analysis accomplished? What materials might interfere with detection? Are special personnel training or taggant detection/analysis instruments needed? Are these instruments fixed or portable? What is the response time? What calibration requirements are necessary? What is the false alarm rate/probability of detection? Is the taggant concept (including the detection scheme) equally applicable to detection of concealed explosives on people, in baggage, etc.?

What is the level of development of this concept (ideas, experiments, calculations, field tests, operational experience with simulants or explosives, etc.)?

What kind of testing has been conducted on this concept?

- Taggant survivability following an explosion? At a measured, high detonation rate?
- Taggant effects on explosive sensitivity?
- Compatibility testing?
- Shelf life or long-term stability of the taggant and effect on explosives?
- Safety testing of the taggant?
- Toxicity testing of the taggant?
- Environmental effects of the taggant; e.g., has a material safety data sheet or premanufacture notification been prepared? What is the environmental persistence of the taggant; e.g., is it biodegradable?

How does the taggant affect explosive performance?

How is the taggant added to the explosive? If added during manufacturing, what are the effects on the operation and throughput rate? How is proper dispersal of the taggant in the explosive ensured? Is it applicable to both batch and continuous manufacture of explosives?

Are there unique operational, recordkeeping, or training requirements for this taggant concept for either explosive manufacturers or users, or for law enforcement personnel?

How susceptible is this concept to countermeasures, including ease of removal? How susceptible is this concept to cross-contamination?

What is the market for this concept? Are there non-explosive applications?