LEAD-FREE PRIMER
Panel Discussion

Nammo

Sweden

Lina Norum, R&D Manager SAA

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NDIA Armament Conference / Small Arms Division Themes
“Armament System Response to the Evolving Threat Spectrum”
“Small Arms Technology Which Creates Asymmetric Operational Advantage for Soldiers, Sailors, Airmen and Marines”

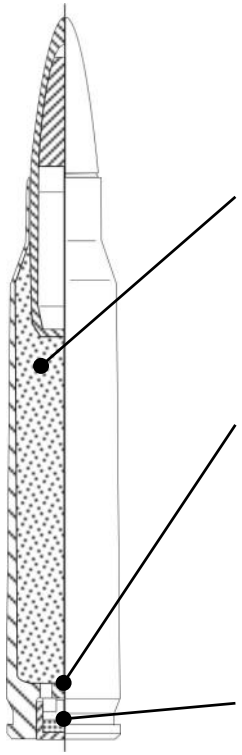
Nammo's roadmap of lead-free technology

- History
  - 1996 Sweden specifies lead-free ammunition
  - 1999 Nammo Initial Production for Sweden
  - 2001 Norway adopts the lead-free technology
  - 2004 lead-free 5.56 mm Ball and 7.62 Ball – NATO Qualified
  - At present, Nammo makes lead free ammunition in four (4) calibres
    - 4.6 x 30 mm Ball (for MP-7)
    - 5.56 x 45 mm Ball, Tracer, IR-Tracer, Frangible, Blank
    - 7.62 x 51 mm Ball, Tracer, IR-Tracer, Frangible, Reduced Range, Armor Piercing
    - 9 x 19 mm Ball, Frangible

- Technology - Challenges
  - Reliable powder ignition by the lead-free primer at all temperatures
  - Copper build-up in the barrels

Nammo's roadmap of lead-free technology

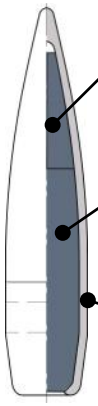
- Cartridge design for 5.56 mm and 7.62 mm
  - Production in standard machinery



Powder - Adapted for lead free primer and projectile

Ignition Chain - Optimized for lead free system

Lead free primer



Hardened steel penetrator - Optimized for maximal penetration

Steel core - Optimized for reduced driving force, reduced barrel erosion and reduced copper fouling

Gilding metal jacket - Optimized for reduced driving force, reduced barrel erosion, reduced copper fouling and to avoid projectile fragmentation