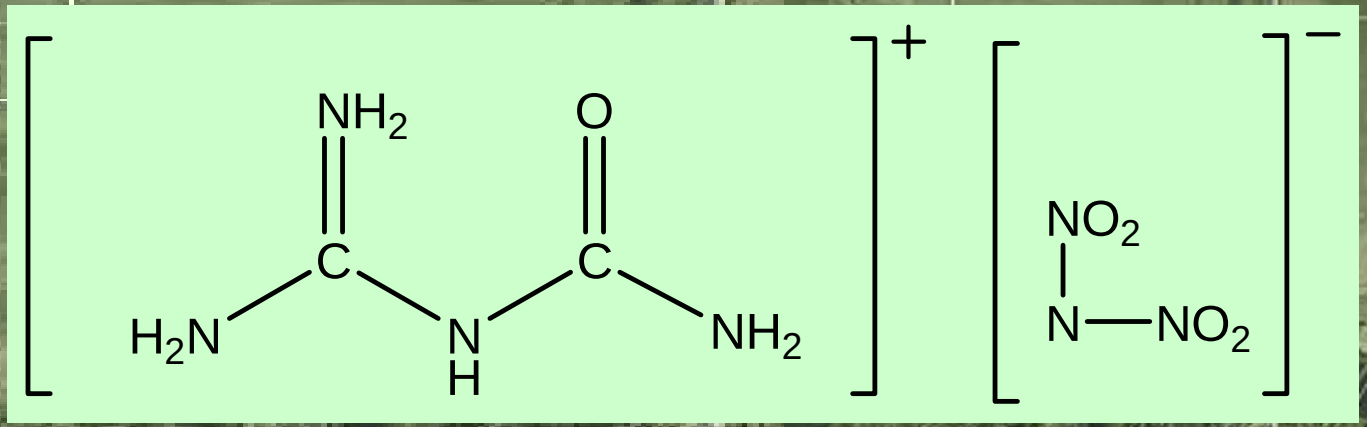
Melt Cast Based on FOX-12 (GUDN)

Names: Guanylurea dinitramid, FOX 12, GUDN

CAS # 217464-38-5

[NH2C(NH)NHCONH3]+ [N(NO2)2]-



Physical Integrity: Will meet any military requirement on stability and aging

EURENCO Bofors

GROUPE SNPE

Nammo

GUDN – Basic Sensitivity Tests

Impact > 90 J (5 kg @ 190 cm) (ERL) (DX 4-5J)

Friction > 352 N (

ESD > 312

10 g PBXN5 and 75 gr = NO GO (Östmark)

"Inert"

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Nammo

Detonics

(Results obtained from Henric Östmark, FOI)

Wake – Up call: [illegible] am PE

Gave a stable deto[illegible] 7870 m/s

High Explosive !

Cylinder te[illegible]m Cu-tube) gave 7970 m/s

an[illegible] P_{CJ} of 26 GPa (TNT is 21)

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GUDN IN MELT CAST

Composition B: [illegible]/TNT

Insensitive?

Substitute [illegible] GUDN: GUDN/TNT

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Sensitivity Tests on GUDN/TNT (45/55)

Test	Result	Co
Impact (ERL)	30 J	> 12 J
Minimal Booster		TATB 4g
Water	2 mm	TATB 7g, Comp B > 15g

Extremely Insensitive!

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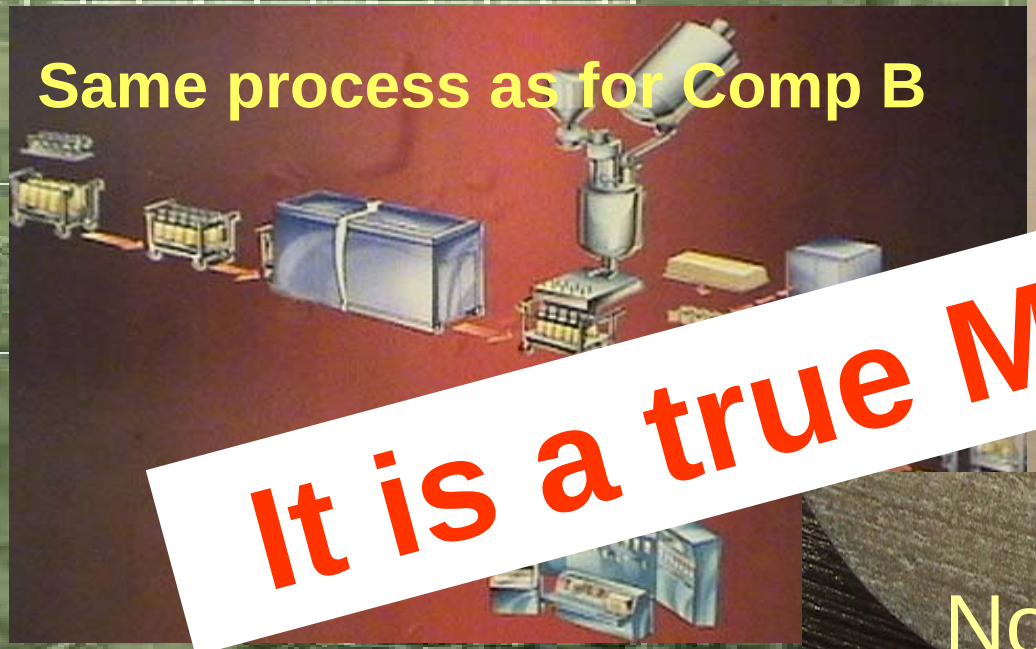
Casting 155 mm Artillery Shells



It is a true Melt Cast!

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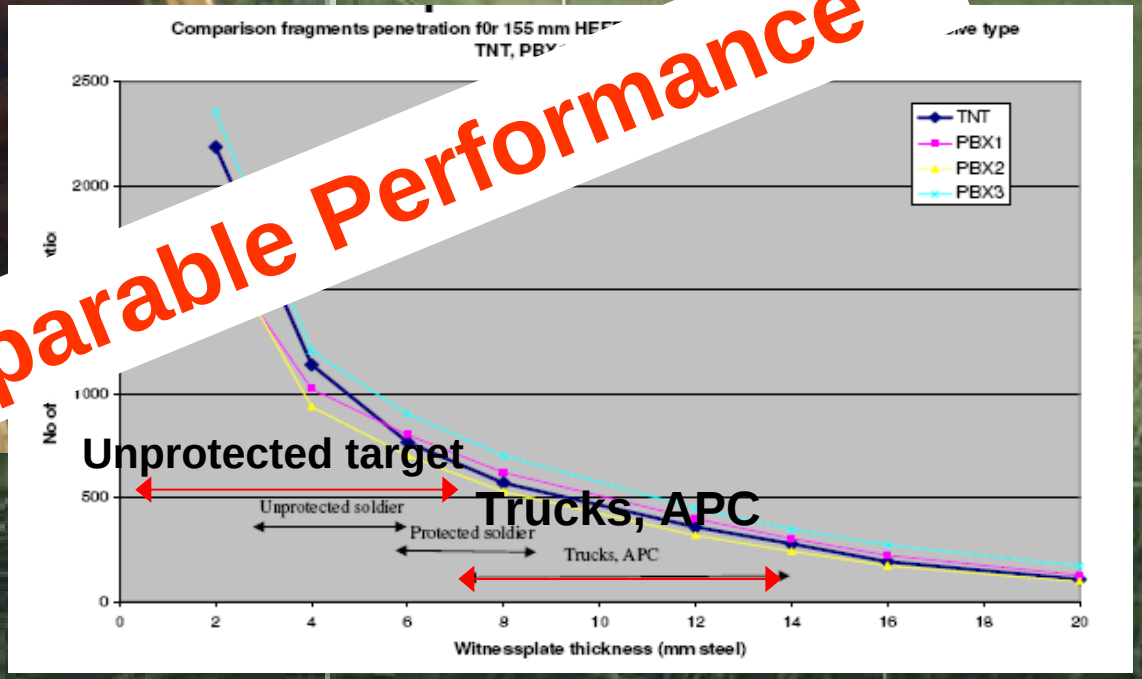
Initiation studies

Cap No. 8
60 gram Comp. B Detonator (155 mm HEER)
Distance 2.2 mm

Burst Yard Test on 155 mm



Comparable Performance

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IM Tests Set Up (STANAG 4413)

SCO

SCJ bomblet

SCJ RPG9

Mass Detonation

TNT was used as reference

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Shaped Charge RPG-9 (73)

Reaction IV

Close whiteness plates

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Mass Detonation

Reaction IV or III

Summery of safety tests

Test	GUDN/TNT	TNT
SCO	Burning	NA
SCJ Bomblet (39)	Deflagration	Explosion
SCJ RPG 9 (73)	Deflagration	Detonation
Mass Detonation	Deflagration/Explosion	Detonation

FUTURE WORK

+ RDX for higher Pcj
Impact sensitivity: GUDN/TNT/RDX 40/35/25 %:
42.5J (25 J GUDN/TNT

+ Al for more energy
Impact sensitivity

GUDN/TNT/RDX/AL 35/35/15/15 %: 49J (25J GUDN/TNT)

GUDN in Cast Cured compositions will be studied at MURAT

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Conclusions

- GUDN in TNT is a Melt Cast
- The sensitivity is extremely low
- The performance is adequate
- Infra exist to start today

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