



## **40 x 46mm (M8931) & 40 x 51mm (M0912) Red Phosphorus Cartridges**

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## BACKGROUND

- **40mm x 46 (LV) Red Phosphorous (RP) smoke cartridge developed during the Namibian War of Independence as a smoke generator for screening and obscuration purposes.**
- **The LV RP cartridge today a stalwart Rheinmetall infantry product in use as smoke generator and target indicator with defence establishments globally.**
- **LV RP cartridge supplemented during 2011 by an extended range 40mm x 51 medium velocity (MV) version.**
- **Both LV and MV RP cartridges are part of a comprehensive 40mm product range sold by American Rheinmetall Munitions (ARM) to US customers.**

## American Rheinmetall Munitions

- Established as US subsidiary of Rheinmetall Defense in 2006
- Quantico, Virginia
  - Business Development, Sales
- Camden, Arkansas
  - Operations, Production Site



# Rheinmetall Denel Munition

**Founded** 1991 (Denel)

**Acquired** 2008

**51% Rheinmetall**

**49% Denel**

**Locations** Five facilities in South Africa

**Expertise** Comprehensive range of  
40 – 155 mm grenade, mortar  
and artillery ammunition



## RP CARTRIDGE PAYLOAD FILLING

**Procurement of  
chemical raw  
materials**



**Mix Red Phosphorus  
composition –  
Fuel  
Oxidiser  
Red Phosphorus  
(encapsulated)  
Rubber binder**



**Extrude Red  
Phosphorus  
compositing**

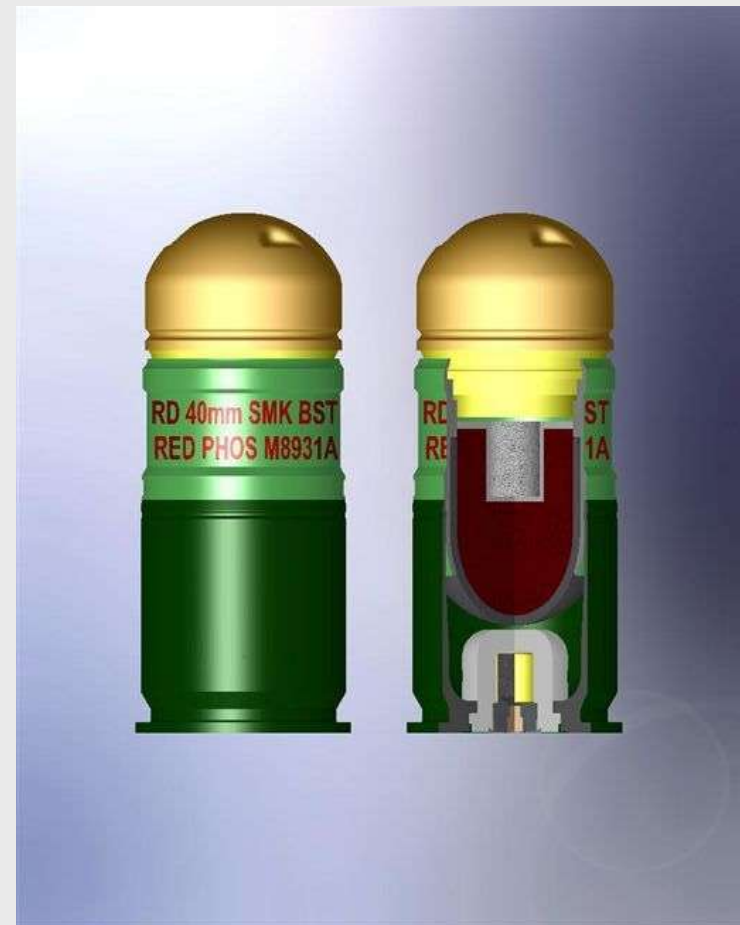
**Cure extruded  
composition**

**Consolidate  
composition into 40  
mm fragmentation  
body**

**Assemble 40 mm RP  
ammunition**

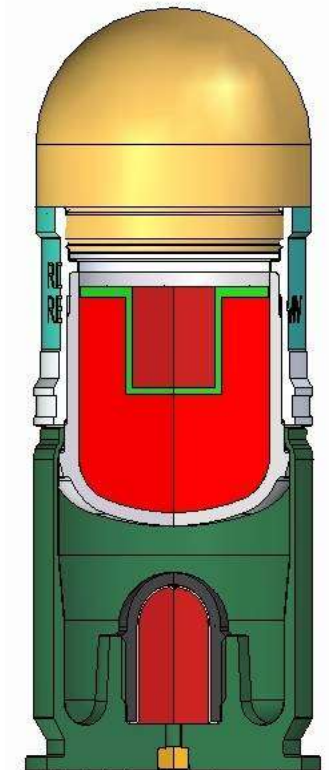
## M8931A1 LV TECHNICAL DATA

<b>Total length</b>	<b>: 103 mm</b>
<b>Total mass</b>	<b>: 231 g</b>
<b>Payload</b>	<b>: Red Phosphorous</b>
<b>Payload mass</b>	<b>: 30 g</b>
<b>Fuze Arming</b>	<b>: 9 m (unarmed) to 28 m (armed)</b>
<b>Fuze Type</b>	<b>: Point Detonating (PD)</b>
<b>Projectile velocity</b>	<b>: 76 m/s</b>
<b>Maximum range</b>	<b>: 400 m</b>



## M0912A1 MV TECHNICAL DATA

<b>Total length</b>	<b>: 112 mm</b>
<b>Total mass</b>	<b>: 263 g</b>
<b>Projectile mass</b>	<b>: 200 g</b>
<b>Payload</b>	<b>: Red Phosphorous</b>
<b>Fuze Arming</b>	<b>: 13 m (unarmed) to 35 m (armed)</b>
<b>Fuze Type</b>	<b>: Point detonating (PD)</b>
<b>Projectile velocity</b>	<b>: 123 m/sec</b>
<b>Maximum range</b>	<b>: 800 m</b>
<b>Operational Temperature</b>	<b>: -46°C - + 71°C</b>





# RP CARTRIDGE COMPATABLE LAUNCHERS

## LV M8931

- Standard LV launchers such as M203 UBGL, M79, M320 and M32 MGL

## MV M0912

- Bespoke LV launchers such as M32 MGL



Free recoil energy	Limitations on number of rounds
0J to 20J	Unlimited firing
20J to 40J	200 rounds/man/day
40J to 60J	100 rounds/man/day
60J to 80J	25 rounds/man/day
Greater than 80J	No shoulder firing

## APPLICATIONS

- **Protect friendly forces from line-of-sight weapons**
- **Support deception operations**
- **Identify and mark enemy targets and tactical locations**
- **Obscure reconnaissance activities, surveillance, and targets from enemy forces.**



## VIDEO RP CARTRIDGE DAY FIRING

**(20 second,  $\pm 100$  M HD video clip to be provided separately due to size constraints)**

## VIDEO RP CARTRIDGE NIGHT FIRING

**(20 second,  $\pm$ 100 mb HD video clip to be provided separately due to size constraints)**

## RP CARTRIDGE SMOKE GENERATION



Front View



# RP CARTRIDGE IM PROPERTIES

Slow Cook-Off	Liquid Fuel / External Fire	Bullet Impact	Sympathetic Reaction
V	IV	IV	V



# RP CARTRIDGE PACKAGING



## CONTACT DETAIL

**RHEINMETALL DENEL MUNITION**  
**(Somerset West, RSA)**

**BRUCE BOTMA**

**+27 82 888 9459 (Office)**

**+27 21 850 291 (Mobile)**

**[Bruce.Botma@rheinmetall-dm.com](mailto:Bruce.Botma@rheinmetall-dm.com)**

**AMERICAN RHEINMETALL MUNITIONS**  
**(Stafford, VA)**

**BRIAN SULLIVAN**

**+1 703 221 9297 (Office)**

**+1 571 212 6502 (Mobile)**

**[Brian.Sullivan@americanrheinmetall.com](mailto:Brian.Sullivan@americanrheinmetall.com)**