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**

1. Procurement of chemical raw materials
3. Extrude Red Phosphorus compositing
4. Cure extruded composition
5. Consolidate composition into 40 mm fragmentation body
6. Assemble 40 mm RP ammunition
M8931A1 LV TECHNICAL DATA

Total length : 103 mm
Total mass : 231 g
Payload : Red Phosphorous
Payload mass : 30 g
Fuze Arming : 9 m (unarmed) to 28 m (armed)
Fuze Type : Point Detonating (PD)
Projectile velocity : 76 m/s
Maximum range : 400 m
**M0912A1 MV TECHNICAL DATA**

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

<table>
<thead>
<tr>
<th>Free recoil energy</th>
<th>Limitations on number of rounds</th>
</tr>
</thead>
<tbody>
<tr>
<td>0J to 20J</td>
<td>Unlimited firing</td>
</tr>
<tr>
<td>20J to 40J</td>
<td>200 rounds/man/day</td>
</tr>
<tr>
<td>40J to 60J</td>
<td>100 rounds/man/day</td>
</tr>
<tr>
<td>60J to 80J</td>
<td>25 rounds/man/day</td>
</tr>
<tr>
<td>Greater than 80J</td>
<td>No shoulder firing</td>
</tr>
</tbody>
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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, ±100 M HD video clip to be provided separately due to size constraints)
VIDEO RP CARTRIDGE NIGHT FIRING

(20 second, ±100 mb HD video clip to be provided separately due to size constraints)
RP CARTRIDGE SMOKE GENERATION
# RP CARTRIDGE IM PROPERTIES

<table>
<thead>
<tr>
<th>Slow Cook-Off</th>
<th>Liquid Fuel / External Fire</th>
<th>Bullet Impact</th>
<th>Sympathetic Reaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>V</td>
<td>IV</td>
<td>IV</td>
<td>V</td>
</tr>
</tbody>
</table>
RP CARTRIDGE PACKAGING
CONTACT DETAIL

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