

Table 1. Improved Formulation for Sparklers (BZ)

Material →	Aluminium Powder 222 (%)	Aluminium Powder 999 (%)	MgAl (%) (200 Mesh Size)	Oxidizer (%)	White Dextrin (%)	Iron Powder (%)	Additive (%) ZP: Zeolite Powder
Improved Formulation - BZ	2.0	2.0	5.0	43.0 [Ba(NO ₃) ₂]	8.0	35.0	5.0
% PM Reduction In Improved Formulation	Upto 30%						

Usage of this formulation is allowed only to fireworks manufacturers signing NDA with CSIR-NEERI and undergoing hands on training for better understanding of standard operating procedures. The usage of this formulation is also subject to PESO approval

Table 2. Improved Formulation for Sparklers (BM)

Material →	MgAl (%) (200 Mesh Size)	Aluminium Powder 999 (%)	Oxidizer (%)	Boric Acid (%)	White Dextrin (%)	Iron Powder (%)
Improved Formulation - BM	5.0	2.0	42.0 [Ba(NO ₃) ₂]	1.5	9.5	40.0
% PM Reduction In Improved Formulation	Upto 30%					

Usage of this formulation is allowed only to fireworks manufacturers signing NDA with CSIR-NEERI and undergoing hands on training for better understanding of standard operating procedures. The usage of this formulation is also subject to PESO approval

Table 3. Improved Formulation for Sparklers (BKZ)

Material →	Aluminium Powder 222 (%)	Aluminium Powder 999 (%)	Oxidizers (%)	Boric Acid (%)	White Dextrin (%)	Iron Powder (%)	TM (%)	Additive (%) ZP: Zeolite Powder
Improved Formulation - BKZ	0.4	5.5	29.0 [Ba(NO ₃) ₂] & 9.0 [KNO ₃]	0.1	7.8	25.5	13.7	9.0
% PM Reduction In Improved Formulation	Upto 30%							

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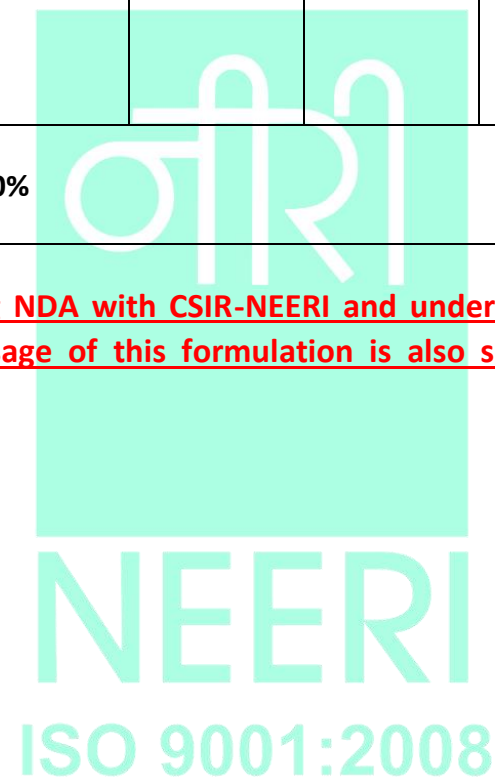
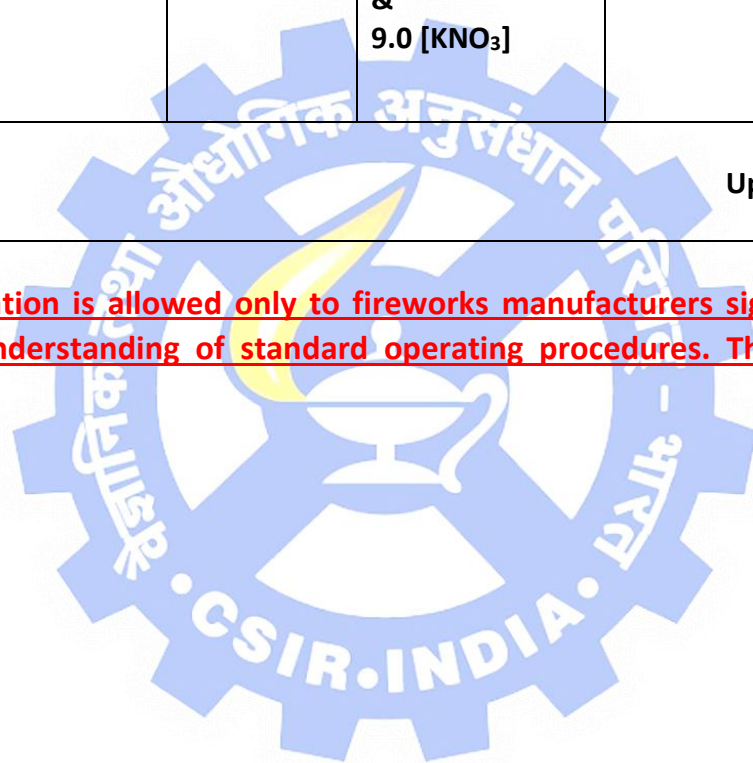


Table 4. Improved Formulation for Chinese Cracker (CZ)

Material →	Potassium Nitrate (%)	Aluminium Powder 999 (%)	Sulphur (%)	Boric Acid (%)	Additive (%) ZPT: Zeolite Pellets	Sound (dBA)
Improved Formulation - CZ	41.0	17.0	25.0	1.0	16.0	110.0
% PM Reduction In Improved Formulation	Upto 30%					

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