

MAHARASHTRA POLLUTION CONTROL BOARD

TESTING OF FIRE-CRACKERS TO ASSESS THE COMPLIANCE OF NOISE LEVEL STANDARDS PRESCRIBED UNDER ENVIRONMENT (PROTECTION) RULES, 1986.

1. Introduction:

Bursting of fire crackers create significant noise pollution during the Diwali Festival. MPCB for last few years is trying to create public awareness towards the high noise levels generated during the bursting of the crackers and its associated adverse health impacts. As a part of awareness activity, MPCB has carried out testing of fire crackers on 07.11.2012 in association with Police



department at **Pune** and in association with police department & Petroleum and Explosive Safety organization **at Nagpur City**. Also, similar exercise was carried out **at Mumbai** in coordination with Awaaz Foundation and Police Department on 08.11.2012 to assess the compliance of noise levels standards prescribed under Environment (Protection) Rules, 1986, amendment in 1999.

Noise standards for fire crackers have been notified vide GSR No.682 (E) dated 5th October, 1999 under the Environmental (Protection) Act. As per this notification, the manufacture, sale or use of fire crackers generating noise levels exceeding 125 dB (A) or 145 dB (C)_{pk} at 4 meters distance from the point of bursting are prohibited for individual fire crackers. For fire crackers in series, these noise limits are suitably made more stringent depending upon the number of crackers in series. The limit be reduced by $5 \log_{10}(N)$ dB, where N= no of crackers Joined together.

2. Observations:

Samples of crackers of different types from various companies available in market were procured. They were tested at where open space was available with concrete surface. Type- I noise meters were used, one for peak measurements and

another for Impulse measurements. The noise measurements were made at 4 mtr. distance from the fire crackers.

Following tables shows details of the crackers tested at Pune, Nagpur and Mumbai and their compliance status with respect to Environment (Protection) rules 1986 relating to firecrackers to assess the compliance of noise level standards prescribed under Environment (Protection) Rules, 1986.

Violation observed for the crackers which are in series

	No of tested brands	Violence of standard		Total no. of violations
		Impulse	Peak	
Mumbai	8	8	1	8
Nagpur	5	5	5	5
Pune	4	2	3	3
Total	17	15	9	16

Violation observed in single crackers

	No of tested brands	Violence of standard		Total no. of violations
		Impulse	Peak	
Mumbai	19	5	Nil	5
Nagpur	10	10	10	10
Pune	8	nil	3	3
Total	37	15	13	18

NOTE:

Noise Standards for single crackers: Impulse -125 dB(A), Peak-145 dB (C)

Noise Standards for crackers in series : The above noise limit be reduced by $5 \log_{10} (N)$ dB, where N=No of crackers joined together

As far as crackers in series are concerned, tests were carried out for 17 different no. of brands. Out of which 15 no. of violations with respect to impulse standard and 9 nos of violations with respect to peak standard were observed. Similarly single crackers are concerned 37 brands were tested, out of which 15 no. of impulse violation and 13 no. of peak violations were observed.

The values of the noise monitoring are given at Annexure-1 to 3 for Pune, Nagpur and Mumbai respectively.

Testing of Fire Crackers at MIT College, Cricket ground, Kothrud, Pune dated
07.11.2012

Sr. No	Name of Company	Brand Name of Fire Cracker	Sound Pressure Level IMPULSE (Max) In dB(A)	Sound Pressure Level PEAK(Max) In dB(C)
Single Cracker			Max allowable decibel=125	Max allowable decibel=145
1	The Ravindra Fireworks, Sivkasi	Dynamite Bomb Foils	103.7	<u>145.4</u>
2	Anil Fireworks Factory, Sivkasi	Laxmi Maroons	106.5	144.1
3	Standard Fireworks, Sivkasi	Color Burst Big	102.1	124
4	Indian National Fireworks, Elayirampanni	Three in One Sound	100.8	138.9
5	Harini Fireworks, Elayirampanni	Two in One Sound	93	113.7
6	Anant Fireworks, Raigad, Alibaug	Army Fighter Bomb	120	<u>146.3</u>
7	New Kranti Fireworks, Terkheda	Big Kong, Atom Bomb	112.7	122.2
8	The Ravindra Fireworks, Sivkasi	Dynamite Bomb Green	99.5	<u>146.7</u>
Series Cracker				
9	The Excel Fireworks Industries, Sivkasi	2000 Shells	<u>123.6</u> (Limit-109)	<u>149.4</u> (Limit-129)
10	Anil Fireworks	Musical Mala	<u>106.2</u> (Limit-118.5)	<u>114.2</u> (Limit-138.5)
11	Anil Fireworks Factory, Soorarpatti	Motta Tukada	<u>117.0</u> (Limit-118.5)	<u>144.3</u> (Limit-138.5)
12	Supreme Pyrotechnic, Sivkasi	1000 Lar	<u>128.5</u> (Limit-110)	<u>148.3</u> (Limit-130)

Noise level testing of Fire Crackers carried at Nagpur City								Annexure-2	
Annexure-I									
SAMPLES COLLECTED FROM MARKET									
Sr.No.	Sample	Branded	Manufacturer	Name of	Purchases	Purchases	Tested	Sound Level Results	
	No	Name		Shop	by	Date		Standards	Observed
									Level
1	1	Hydrogen Green	Thirumeenakshi Fireworks	Chandak Fireworks,	Team	7.11.2012	7.11.2012	i) AI(125dB Max)	128.8 dB
			Sivkashi	Nr.Renuka Mandir,				ii)Cpk(145 dB Max)	151.3 dB
				Gandhibaug,Nagpur					
2	2	Laxim Bomb	Thirumeenakshi Fireworks	Chandak Fireworks,	Team	7.11.2012	7.11.2012	i) AI(125dB Max)	127.9 dB
			Sivkashi	Nr.Renuka Mandir,				ii)Cpk(145 dB Max)	150.6 dB
				Gandhibaug,Nagpur					
3	3	Pukar Bomb Green	Bandukwala Fireworks,	Iswardas and Sons	Team	7.11.2012	7.11.2012	i) AI(125dB Max)	138.6 dB
			Akola	Gandhibaug,Nagpur				ii)Cpk(145	158.7 dB

								dB Max)	
4	4	Nitrogen Green	Bandukwala Fireworks,	Iwardas and Sons	Team	7.11.2012	7.11.2012	i) AI(125dB Max)	137.3 dB
		Bomb	Akola	Gandhibaug,Nagpur				ii)Cpk(145 dB Max)	159.2 dB
5	5	King of King	Thiruselvi Fireworks Ind,	Iwardas and Sons	Team	7.11.2012	7.11.2012	i) AI(125dB Max)	138.3 dB
			Sivkashi	Gandhibaug,Nagpur				ii)Cpk(145 dB Max)	160.2 dB
6	6	Parrot	Vinayaga Fireworks Ind	Virat Enterprises,	Team	7.11.2012	7.11.2012	i) AI(125dB Max)	134.4 dB
			Sivkashi	Gandhibaug,Nagpur				ii)Cpk(145 dB Max)	156.6 dB
7	7	Super Bullet	Shrikrushna Fireworks Ind	Virat Enterprises,	Team	7.11.2012	7.11.2012	i) AI(125dB Max)	133.4 dB
			Sivkashi	Gandhibaug,Nagpur				ii)Cpk(145 dB Max)	156.2 dB
8	8	Hydrogen Hulk	Shrikrushna Fireworks Ind	Virat Enterprises,	Team	7.11.2012	7.11.2012	i) AI(125dB Max)	138.2 dB
		Green	Sivkashi	Gandhibaug,Nagpur				ii)Cpk(145 dB Max)	160.6 dB
9	9	Super	Ponomalar	JP & Sons,	Team	7.11.2012	7.11.2012	i) AI(125dB	135.3 dB

		Bomb Green	Fireworks Ind					Max)	
			Sivkashi	Gandhibaug,Nagpur				ii)Cpk(145 dB Max)	157.7 dB
10	10	Gold Laxmi	Shriram Fireworks	JP & Sons,	Team	7.11.2012	7.11.2012	i) AI(125dB Max)	125.8 dB
			Sivkashi	Gandhibaug,Nagpur				ii)Cpk(145 dB Max)	147.0 dB
Crackers in Series (Garland)									
11	11	Chathak Delux(24)	Shri Adi Parashakti Fire-	Chandak Fireworks,	Team	7.11.2012	7.11.2012	i) AI(118.4dB Max)	127.9 dB
			works, Sivkashi	Nr.Renuka Mandir,				ii)Cpk(138.0 dB Max)	150.3 dB
				Gandhibaug,Nagpur					
12	12	Ashoka Red Fort(50)	Standard Fireworks	Iswardas and Sons	Team	7.11.2012	7.11.2012	i) AI(116.5dB Max)	121.4 dB
			Sivkashi	Gandhibaug,Nagpur				ii)Cpk(136.5 dB Max)	138.2 dB
13	13	Electric	Standard	Virat Enterprises,	Team	7.11.2012	7.11.2012	i)	126.3 dB

		Cracker(24)	Fireworks					AI(118.4dB Max)	
			Sivkashi	Gandhibaug,Nagpur				ii)Cpk(138.0 dB Max)	145.2 dB
14	14	Palace Delux(24)	Dass Fireworks,	JP & Sons,	Team	7.11.2012	7.11.2012	i) AI(118.4dB Max)	129.6 dB
			Sivkashi	Gandhibaug,Nagpur				ii)Cpk(138.0 dB Max)	151.0 dB
15	15	2000 wala	Shenthikumar	Agra Shen Chowk,	Team	7.11.2012	7.11.2012	i) AI(108.4dB Max)	118.9 dB
			Sivkashi	Gandhibaug,Nagpur				ii)Cpk(128.4 dB Max)	140.7 dB

Annexure-3

Testing of fire crackers at Carter Road, Bandra dated 08.11.2012.

Sr.No.	Name of Company	Brand name of fire cracker	Noise Level limit written on the firecracker	Chemical composition written on the firecracker	Sound pressure level IMPULSE (Max) In dB(A)	Sound pressure level PEAK (Max) In dB(C)
Single firecrackers			Y/N	Y/N	Max. allowable decibel= 125	Max. allowable decibel= 145
1	Shama fire works Jalgaon	Vulcano Sutali Bomb	Y	Y	126	135
2	Standard Fire works Sivakasi	Giant Crackers	Y	N	122.6	124.6
3	Vinayaga Fire Works Sivakasi	7 up shots	N	N	103.9	103.2
4	J K Fire works, Therkheda	Saddam Dhamaka	N	Y	125.6	134.4
5	Kala Fire Works Sivakasi	2 Sound crackers	N	N	115.6	115.2
6	Kala Fire Works Sivakasi	Flower lady	N	N	122.0	127.0
7	Manoj Fire Crackers, Sivakasi	Gutter balls	N	N	119.3	125.7
8	Sony Fire Works, Sivakasi	Italy	N	N	112.2	118.5
9	Coronation Fire Works, Sivakasi	Double Sound	N	N	82.0	85.0
10	Anil Fire Woks, Sivakasi	Triple Sound	N	N	122.3	126.3
11	Standard Fire works, Sivakasi	7 shots	N	N	116.1	117.8
12	Coronation Fire Works, Sivakasi	Nazi green	Y	Y	126.0	134.2
13	Standard Fire works, Sivakasi	Thunder Bomb	Y	N	126.6	134.5

14	Standard Fire works, Sivakasi	Aerial out	N	N	117.7	117.8
15	Standard Fire works, Sivakasi	Crackling king	N	N	95.5	97.3
16	Charminar Fire Works, Sangola	Thriller Bomb	N	Y	126.4	134.3
17	Standard Fire works, Sivakasi	Kargill bullet	N	Y	99.5	95.2
18	Coronation Fire Works, Sivkasi	Bada bing bada boom	Y	Y	111.0	111.2
19	Anil Fire Works, Sivakasi	Musical mala	N	N	105.3	104.2

Fire crackers in series

Sr.No.	Name of Company	Brand name of fire cracker	Noise Level limit written on the firecracker	Chemical composition written on the firecracker	Standards	Observed Levels
1	Jeys sakthi Fire works, Srivilliputter	600 wala	Y	N	i) AI (111.1 dBmax) ii) Cpk(131.1 dBmax)	120.5 119.3
2	Sarojini Fire Works, Sivakasi	1000 Wala	N	N	i) AI (110.0 dBmax) ii) Cpk 130.0 dBmax)	116.9 115.2
3	Shree Devivam Fire works Sivakasi	2000 wala	Y	N	i) AI (108.5 dBmax) ii) Cpk(128.5 dBmax)	121.4 121.4
4	Kuil Fire Works Sivakasi	50 shots marvel	N	N	i) AI (116.5 dBmax) ii) Cpk(136.5 dBmax)	122.0 111.2
5	Standard Fire works, Sivakasi	Red Fort 1000 shell	Y	N	i) AI (110.0 dBmax) ii) Cpk(130.0 dBmax)	121.7 122.0
6	Standard Fire works, Sivakasi	Speed 100	N	N	i) AI (115.0 dBmax) ii) Cpk(135.0 dBmax)	121.6 123.1
7	Anil Fire Works, Sivakasi	Dilkhush 50 shots	Y	N	i) AI (116.5 dBmax) ii) Cpk(136.5 dBmax)	121.2 122.5
8	Standard Fire works, Sivakasi	5000 shell	Y	N	i) AI (106.5 dBmax) ii) Cpk(126.5 dBmax)	126.7 130.7

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