

## ESD Safe Spray Bottle - Trigger Action

### Description

16/32oz ESD spray bottles for use in cleanroom environments.

Part of a wide range of ESD static dissipative spray bottles and dispensers available in a selection of sizes from stock.

Please note this is sold as the bottle only and contains no contents.



A polyethylene formulation containing an anti-static agent has been blow-molded into two bottle sizes for potential sale to the electronics industry. The performance of this propriety anti-stat is related to its permanence in the blown bottle. Hence, it is important to determine whether this compound can be extracted into solvents commonly used in electronics assembly operations. The amount of solid residue which is left after solvent evaporation is also in consideration when selling into an industry dependent on cleanliness. Lastly, it should be determined whether the solvents are chemically changed in any way by being brought into contact with the anti-stat agent.

### Analysis:

#### Solvent Extraction Studies:

The identity and amount of materials extracted from the bottles into commonly used solvents in a seven day period at room temperature have been determined.

#### Solvents used:

1. Water (H<sub>2</sub>O): Mallinckrodt ChromAR HPLC Grade
2. 1,1,1-Trichloroethane (TCE): Mallinckrodt Transistar Grade
3. Isopropyl Alcohol (IPA): Mallinckrodt Transistar Grade
4. Methylene Ketone (MEK): EM Industries Omnisolve

Both the large and small bottles were filled to the brim: large bottle capacity, 200ml (± 5%) and small bottle capacity, 70ml (± 5%). After one week, the contents of the bottles were transferred to preweighed glass flasks, the solvents evaporated, the residue weights measured and IR spectra recorded. The bottles were retained for static charge testing (a small amount of TCE washed for the outside of the large test bottle).

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### Large Bottle Results

Bottle ID	WT. Residue Concentration		
	G	MG / ML	PPM
L-TCE	0.0256	0.13	97
L-MEK	0.0191	0.096	120
L-IPA	0.0082	0.041	52
L-H <sub>2</sub> O	<0.001	<0.01	<5

### Small Bottle Results

Bottle ID	WT. Residue Concentration		
	G	MG / ML	PPM
S-TCE	0.0487	0.70	520
S-MEK	0.0213	0.30	380
S-H <sub>2</sub> O	<0.001	<0.01	<15

### Solvent stability:

The structure provided for the anti-stat (N, N-diethanol octanamide) is that of a very stable molecule. By its chemical nature, it will have no chemical reactivity with the solvents. The pH of the water solutions was the same (ca. 5.9) before and after the seven day period. No color change or other physical change was mooted for any of the solvents used in this study.

Product Code	Description	Size (oz)	Additional Notes
146-0020	ESD Safe Spray Bottle	16	Each
146-0021	ESD Safe Spray Bottle	32	Each



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