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Pure Air Systems has extensively tested the S.DOC burner for its ability to react pyrophoric gasses to low or non-hazardous materials. Results from that testing enable us to provide the following performance specification for S.DOC when it is used to abate mixtures of monosilane (SiH<sub>4</sub>) and Phosphine (PH<sub>3</sub>) gasses diluted with nitrogen (N<sub>2</sub>).

The resulting by-products are solid silicon dioxide (SiO<sub>2</sub>), phosphorus pentoxide (P<sub>2</sub>O<sub>5</sub>). Some phosphosilicate glass is also expected, although its formation is not proven.

| CHALLENGE<br>(GASSES ENTERING S.DOC) |                 |                | CONCENTRATION<br>(ppm) |                       | GASSES EXITING<br>S.DOC |                 | CONCENTRATION<br>(ppm) |                      | DRE |  |
|--------------------------------------|-----------------|----------------|------------------------|-----------------------|-------------------------|-----------------|------------------------|----------------------|-----|--|
| FLOW<br>(slm)                        |                 | N <sub>2</sub> | SiH <sub>4</sub>       | PH <sub>3</sub> ..... | SiH <sub>4</sub>        | PH <sub>3</sub> | %<br>SiH <sub>4</sub>  | %<br>PH <sub>3</sub> |     |  |
| SiH <sub>4</sub>                     | PH <sub>3</sub> |                |                        |                       |                         |                 |                        |                      |     |  |
| 0.05                                 | 0               | 45             | 1100                   | 0                     | 7                       |                 | 50                     |                      |     |  |
| 0.1                                  | 0               | 45             | 2200                   | 0                     | 5                       |                 | 82                     |                      |     |  |
| 0.2                                  | 0               | 45             | 4400                   | 0                     | 5                       |                 | 92                     |                      |     |  |
| 0.4                                  | 0.016           | 45             | 8900                   | 360                   | 3                       | <. 1            | 98                     | >99.5                |     |  |
| 0.4                                  | 0.01            | 45             | 8900                   | 220                   | 3                       | <. 1            | 98                     | >99.5                |     |  |
| 0.4                                  | 0               | 45             | 8900                   | 0                     | 3                       |                 | 98                     |                      |     |  |
| 0.6                                  | 0               | 45             | 6700                   | 0                     | 0.1                     |                 | >99.9                  |                      |     |  |
| 1.0                                  | 0.004           | 45             | 22,000                 | 90                    | <. 1                    | <. 1            | >99.9                  | >99.5                |     |  |
| 2.0                                  | 0.005           | 45             | 44,000                 | 110                   | <. 1                    | <. 1            | >99.9                  | >99.5                |     |  |
| 0.05                                 | 0               | 20             | 2500                   | 0                     | 6                       |                 | 58                     |                      |     |  |
| 0.1                                  | 0               | 20             | 5000                   | 0                     | 5                       |                 | 84                     |                      |     |  |
| 0.2                                  | 0               | 20             | 10,000                 | 0                     | 5                       |                 | 94                     |                      |     |  |
| 0.4                                  | 0.016           | 20             | 20,000                 | 800                   | 2                       | <. 1            | 99                     | >99.5                |     |  |
| 0.4                                  | 0.01            | 20             | 20,000                 | 500                   | 2                       | <. 1            | 99                     | >99.5                |     |  |
| 0.4                                  | 0               | 20             | 20,000                 | 0                     | 2                       |                 | 99                     |                      |     |  |
| 0.6                                  | 0               | 20             | 30,000                 | 0                     | <. 1                    |                 | >99.9                  |                      |     |  |
| 1.0                                  | 0.004           | 20             | 50,000                 | 200                   | <. 2                    | <. 1            | >99.9                  | >99.5                |     |  |
| 2.0                                  | 0.005           | 20             | 100,000                | 250                   | <. 3                    | <. 1            | >99.9                  | >99.5                |     |  |