

Dielectric Strength Notes
Note 13

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Further Breakdown Data Concerning Water

by

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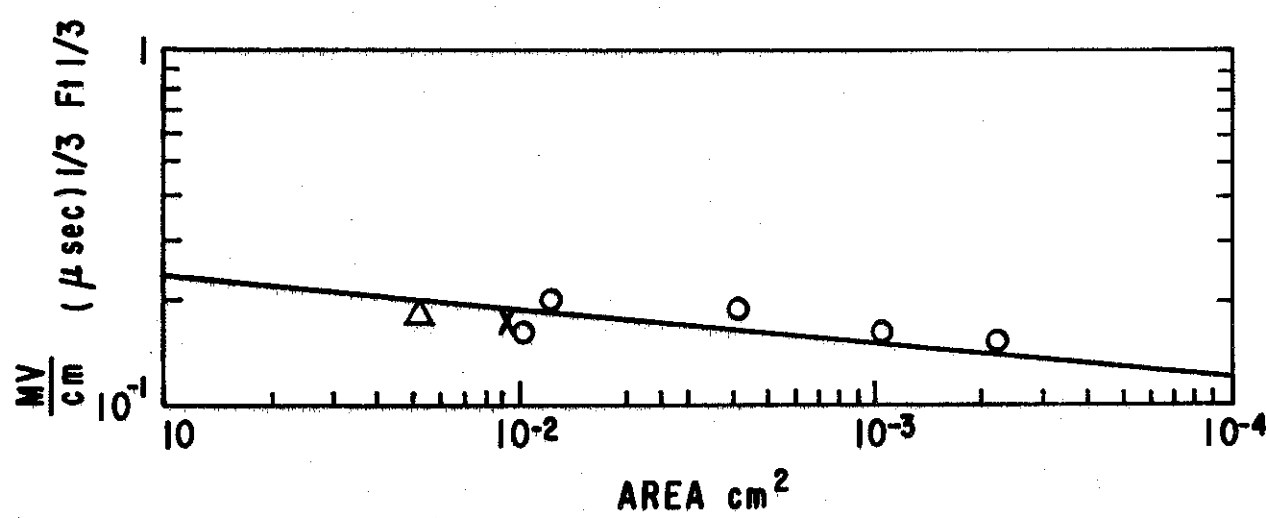
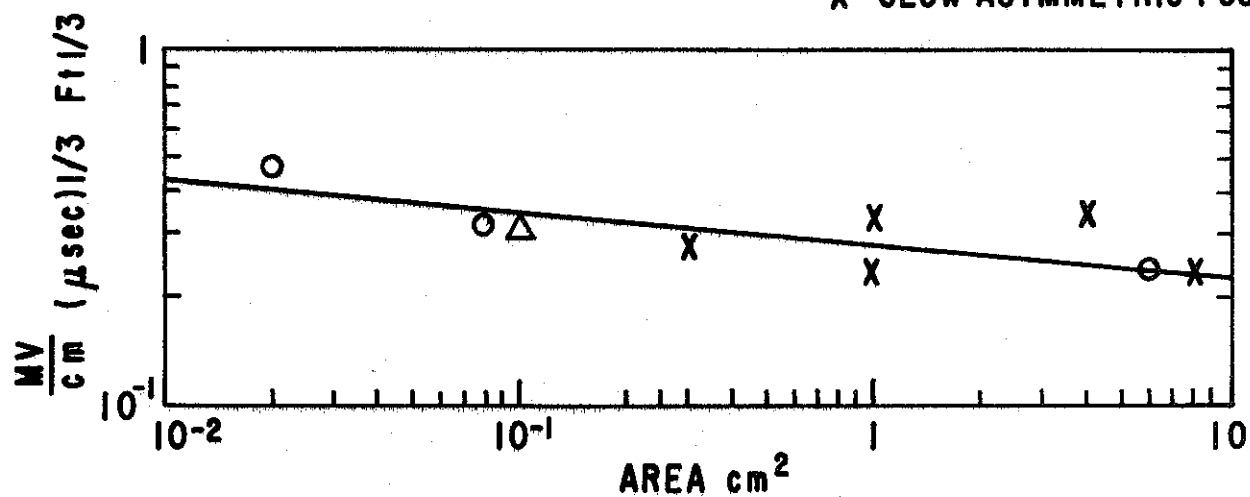
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The table shows the data in the previous note (1 - 5) and further measurements of positive breakdown both with uniform fields and asymmetric electrodes in the form of rod-plane and ball plane gaps and coaxial line. The uniform field data all lies close to the original line. The asymmetric data is corrected using the formula $\alpha = 1 + .12 (F.E. - 1)^{1/2}$ and is scattered around the line. The two points well above are ball-plane gaps and it is possible that the ball is shielded by its supporting rod.

If no correction is applied to the asymmetric field points then three lie on the curve and the two mentioned above lie even further up.

| | A | V | d | F | t | $Ft^{1/3}$ | Corrected | Method |
|-----|------|-----|-----|-----|-----|------------|-----------|--------------------------|
| 1. | 2200 | .3 | 1.5 | .2 | .5 | .15 | | WEWOBL |
| 2. | 120 | .3 | 1.0 | .3 | .3 | .19 | | Plates |
| 3. | 400 | 1 | .4 | .25 | .4 | .18 | | Plates |
| 4. | .1 | .16 | .2 | .9 | .05 | .32 | | Balls, Dagwood (Fast) |
| 5. | 50 | .4 | .6 | .7 | .02 | .19 | | Wewobl Plates (Fast) |
| 6. | 1000 | .9 | 5 | .18 | .6 | .154 | | Plates |
| 7. | .3 | .22 | | .67 | .33 | .34 | .28 | Balls Asymmetric |
| 8. | 1 | .27 | | .5 | .3 | .29 | .24 | " " |
| 9. | 100 | 1.5 | 7 | .18 | .35 | .16 | | Plates |
| 10. | 6.0 | .4 | 1.0 | .4 | .2 | .24 | | Plates |
| 11. | .08 | .16 | .2 | .9 | .05 | .32 | | Balls |
| 12. | .02 | .15 | .2 | .8 | .2 | .47 | | Balls |
| 13. | 90 | .23 | 1.5 | .2 | .4 | .19 | .17 | Coax. Asymmetric |
| 14. | 4 | .65 | 2.5 | .65 | .18 | .38 | .33 | Ball plane Asymmetric |
| 15. | 1 | .37 | 1 | .8 | .12 | .37 | .32 | " " |
| 16. | 8 | .25 | 1 | .5 | .16 | .26 | .23 | Rod Plane Asymmetric |

- SLOW UNIFORM
- △ FAST UNIFORM
- X SLOW ASYMMETRIC POSITIVE



WATER