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MDMA (Ecstasy) and the Marquis Reagent

Dear Dr. Shulgin:

Hi. I am writing a 7000 word essay about ecstasy, and I can't seem to find the information I need about the Marquis Reagent. Could you tell me what it is and what it does? Thank you.

-- Ann

Dear Ann:

The Marquis reagent is a spot testing for alkaloids that was first reported in 1896. The original testing agent was a mixture of 2 drops of 40% formaldehyde and 3 milliliters of concentrated sulfuric acid. It was originally used for detecting small amounts of certain alkaloids, and for distinguishing between them. The signature of the alkaloid is both the initial color produced, as well as the sequence of color changes occurring with time. In the early days the Marquis reagent was used primarily to distinguish the opium alkaloids. Each alkaloid had a pattern of color change. It is being used today as one of the identifying tools in trying to establish just what may be present in something that is sold as ecstasy. The compounds in the MDA, MDMA, MDE family give a purple-black color, whereas with amphetamine the color is usually an orange brown.

As the test is extremely sensitive, no estimate can be easily made as to the quantity of alkaloid present. And of course, a dark color will tend to hide a light color. As with all assays requiring subjective interpretation, experience is everything. Unfortunately, with our present restrictive stance on Scheduled drugs, it is almost impossible to get documented reference samples of alkaloids of interest, further limiting the accuracy of this kind of field tests.

-- Dr. Shulgin

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Dr. Alexander Shulgin

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