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Venus glory and the unknown uv absorber

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We report on the first observation of a complete glory on top of the Venus clouds captured with the Venus Monitoring Camera (VMC) when the Sun was almost directly behind the Venus Express space-craft. The wavelengths dependence of the position of the glory is consistent with clouds being composed of spherical droplets of sulphuric acid with radius of 1.2 micron, the so called mode-2 particles. The ratio of backscattering (zero phase angle) to maximum intensity of the glory as well the slope of the observed intensity at larger phase angles cannot be explained by the sulphuric acid droplets alone suggesting a need of an additional component. We investigated several possibilities and argue that one good explanation is that the acid droplets nucleate on small inner cores composed of iron chloride. Iron chloride is one candidate for the so-called unknown absorber in the ultraviolet wavelengths range. An alternate explanation could be that the sulphuric acid droplets are coated with a thin layer of sulphur.