**Definition of CPL Optical Properties Flags**

**Table 8: Definitions of CPL Optical Properties Flags**

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| **Parameter** | **Interpretation** |
| Extinction\_QC\_Flag | -1=calculation not attempted  0 = non-opaque layer extinction analysis nominal |
|  | 1 = layer hit earth’s surface before layer bottom reached, adjusted bottom |
|  | 2 = lowering lidar ratio thru iteration process successful |
|  | 3 = raising lidar ratio thru iteration process successful  4 = # of iterations maxed out, analysis stopped  5 = signal inside layer saturated before bottom, analysis stopped  6 = layer is opaque, layer OD= -1, initial lidar ratio accepted  7 = layer is opaque, layer OD= -1, lidar ratio iteration successful  8 = layer OD out of bounds (invalid) OD= -999.9  9 = layer analysis invalid because final lidar ratio out of bounds |
| Lidar\_Ratio\_Selection\_Method | 0 = generic default |
|  | 1 = aerosol GEOS5 lookup table |
|  | 2 = cloud lookup table |
|  | 3 = 1064 lidar ratio used 532 OD (for ice clouds only)  4 = constrained result using clear zone just below layer  5 = constrained result with opaque layer  6 = lowered lidar ratio by a max of 15sr to reach layer bottom  7 = raised lidar ratio by a max of 15sr to reach layer bottom  8 = open slot (not used)  9 = missing |
| Constrained\_Lidar\_Ratio\_Flag | 0 = useful value using nominal “constrained’ procedure |
|  | 1 = useful value using opaque “constrained’ procedure |
|  | 2 = constrained lidar ratio outside thresholds  3 = below layer clear zone too small  4 = clear zone signal error > threshold  5 = Tp\_sq < allowed min  6 = Tp\_sq at or below 0.0  7 = useful 1064 lidar ratio using 532 OD (for ice clouds only)  8 = Tp\_sq at or below 0.0 in opaque cloud conditions  9 = missing |