

## OPTICAL GRADING OF SAPPHIRE

Grade	Description
1	Inclusions, lineage, bubbles and twins are not permitted.
2	Inclusions, lineage and twins are not permitted. Micro bubbles with a diameter of 10 microns or less are permitted. (Bubbles less than 10 microns are generally not visible with the naked eye).
3	Inclusions, lineage and twins are not permitted. Uniformly distributed bubbles not larger than 50 microns in diameter and not closer in distance between bubbles than 500 microns are permitted.
4	Inclusions, lineage and twins are not permitted. Uniformly distributed bubbles not larger than 50 microns in diameter and not closer in distance between bubbles than 500 microns are permitted. Concentrations of micro bubbles not larger than 200 microns in diameter overall and not closer than 20mm between concentrations of micro bubbles are permitted.
5	Inclusions, lineage and twins are not permitted. Uniformly distributed bubbles not larger than 50 microns in diameter and not closer in distance between bubbles than 500 microns are permitted. Concentrations of micro bubbles not larger than 500 microns in diameter overall and not closer than 20mm between concentrations of micro bubbles are permitted.
6	Inclusions, lineage and twins are not permitted. Lineage with a disorientation angle smaller than 20mm is permitted. Bubbles and concentrations of micro bubbles not larger than 500 microns in diameter overall and not closer than 20mm between concentrations of micro bubbles are permitted.
7	Bubbles and concentration of micro bubbles not larger than 500 microns are permitted. Inclusions, twins and lineage are permitted.

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All types of defects other than cracks are permitted.