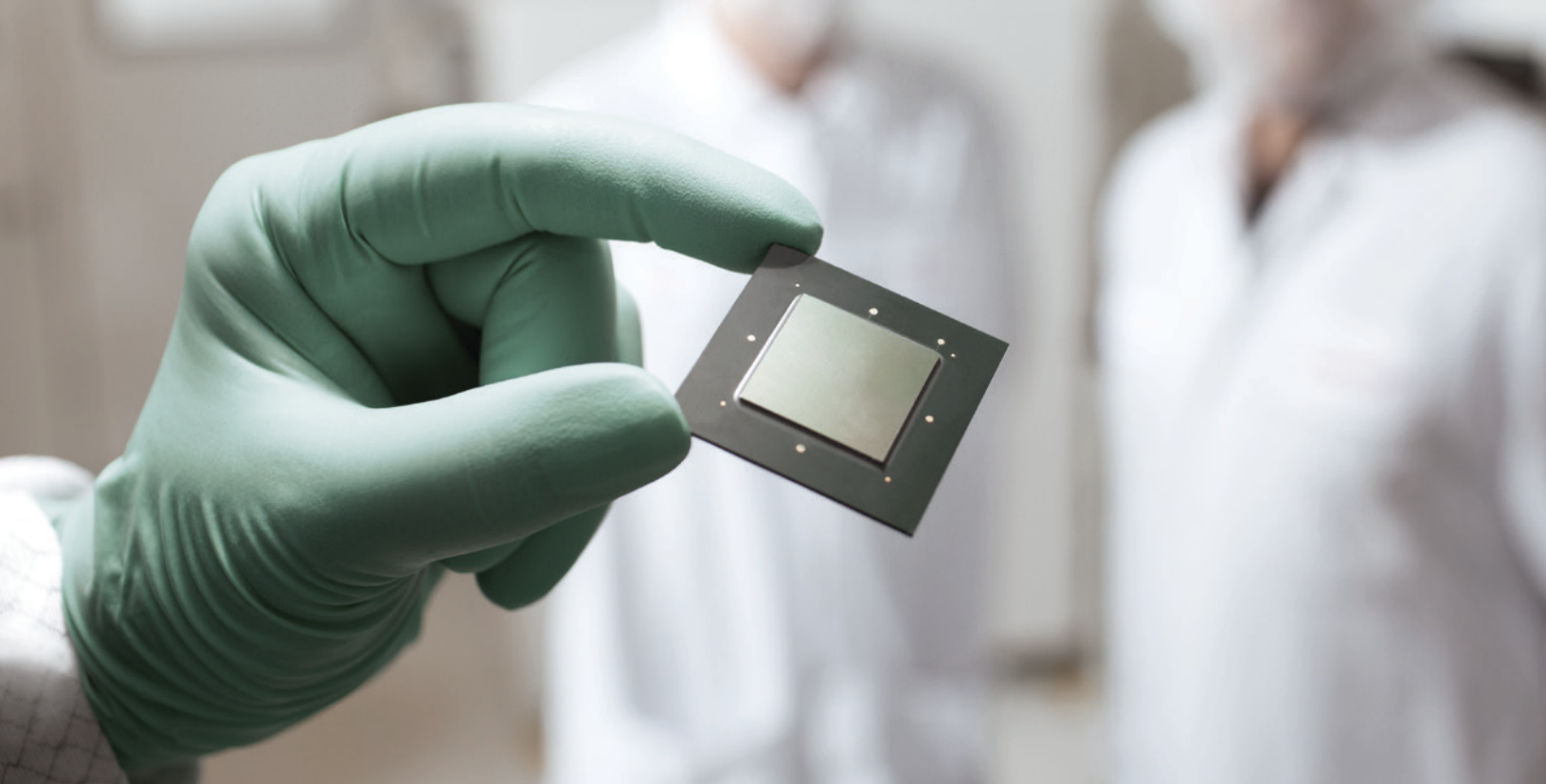


LOCTITE[®]

**Materials for
MICRO-ELECTRO-MECHANICAL SYSTEMS (MEMS)**



Henkel

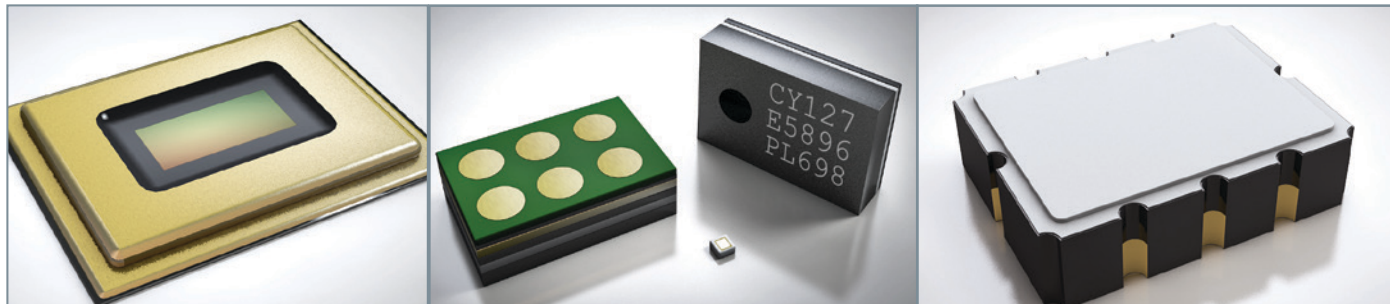


MEMS

Henkel Advantage

When one considers the average smartphone contains approximately eight to 10 MEMS – a number which is projected to grow in the coming years – one gets a sense for the breadth of MEMS applications. The ability to design, test and commercialize new MEMS devices quickly is critical to a MEMS manufacturer's market competitiveness. In order to meet the average three-to-six month cycle time, MEMS manufacturers need to leverage proven materials solutions that are market-ready, market-tested and supported globally to facilitate multi-site design and manufacturing.

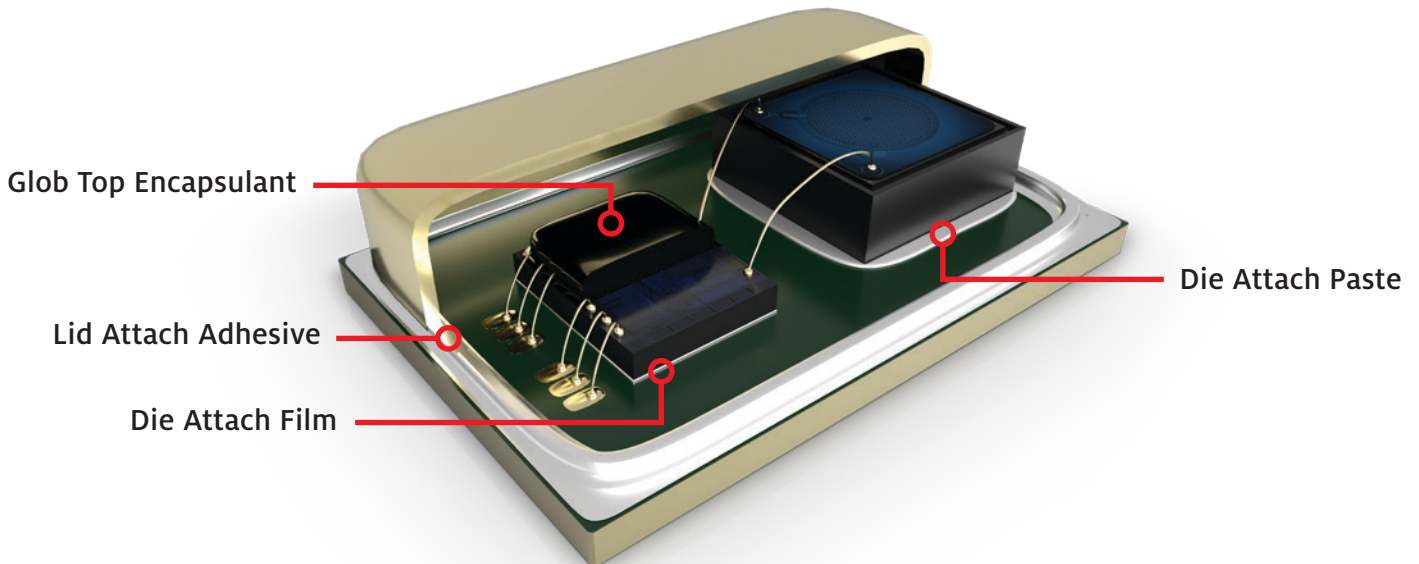
For trusted, proven MEMS materials, a full-solutions approach, quick materials delivery for fast production ramp-up, supply chain simplification, global support and capability, along with an expert, knowledgeable team, Henkel is the obvious – and only – choice.



MEMS Application Overview

Microphones, Pressure Sensors

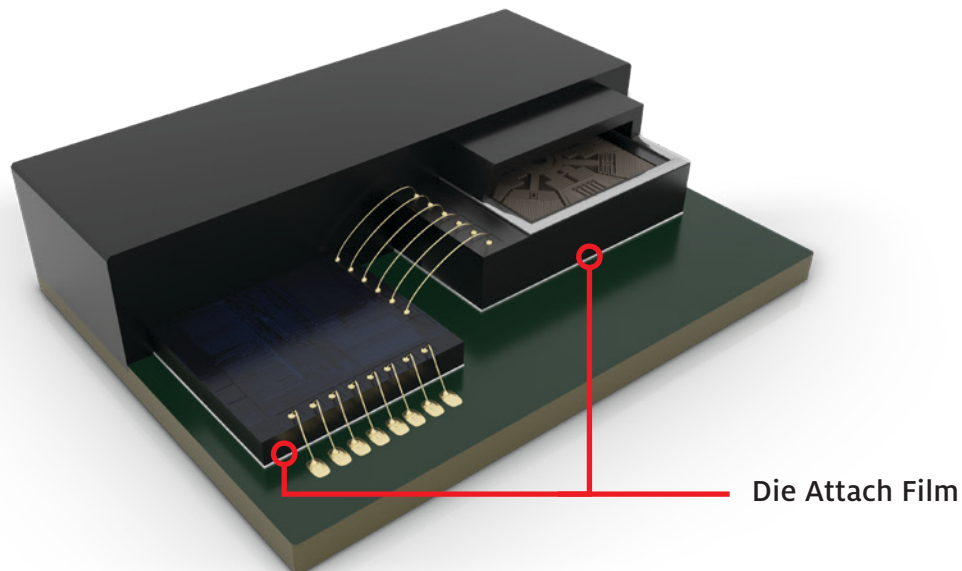
Henkel has a full portfolio of proven materials for a range of processes from die attach to underfill to lid attach and glob top. And Henkel's global support structure ensures quick delivery of Henkel materials around the globe for just about any MEMS application.



MEMS Application Overview

Accelerometers, Gyroscopes, Magnetometers

Henkel provides multiple materials for quick evaluation and testing. This, combined with Henkel's global infrastructure, ensures expert on-site worldwide technical support.



Henkel's MEMS Material Portfolio

Application		Products	Description	Modulus at 25°C (MPa)	Modulus at 250°C (MPa)
ASIC Attach or MEMS Attach	Non-Conductive Paste	LOCTITE® ABLESTIK QMI536NB	Low stress and low moisture absorption, no bleed	300	76
		LOCTITE ABLESTIK QMI538NB		100	30
		LOCTITE ABLESTIK ABP 8142B	Ultra low stable modulus across reflow temperature	2.8	3
	Non-Conductive Paste Print B-Stage	LOCTITE ABLESTIK 8006NS	B-stageable, wafer backside coating, fillet control	4,400	70
		LOCTITE ABLESTIK 6202CX	B-stageable, printed BOC, fillet control	900	6
ASIC Attach	Non-Conductive Film B-Stage	LOCTITE ABLESTIK ATB F125E	DDAF, compatible with non-UV and UV dicing tape, very good laser / SDBG performance, suitable for < 3 mm x 3 mm die	5,256	185
		LOCTITE ABLESTIK ATB 120HA	Low modulus DDAF, laser & stealth dice able, suitable for > 3 mm x 3 mm die	2,299	8.3
ASIC Attach or MEMS Attach	Conductive Paste	LOCTITE ABLESTIK ABP 8060T	High thermal and electrical conductivity, high die shear strength	6,230	1,730
		LOCTITE ABLESTIK 8290	High reliability and good adhesion on different surfaces	3,034	117
Lid or Cap Attach	Non-Conductive Paste	LOCTITE ABLESTIK 3128	Low cure temperature and good adhesion on different surfaces including LCP	3,900	N/A
		LOCTITE ABLESTIK 8387B	High adhesion, fast cure, low weight loss	1,400	53
Lid or Cap Attach	Conductive Paste	LOCTITE ABLESTIK CE3920	Sn compatible, stable adhesion after 5X reflow, low weight loss	5,000	110
		LOCTITE ABLESTIK ABP 2032S	High adhesion on Au and steel, low temperature curable	4,600	150
		LOCTITE ABLESTIK 84-1LMISR4	Good adhesion on different surfaces	3,900	300
Lid or Cap Attach	Conductive Paste Print B-stage	LOCTITE ABLESTIK 8007	Stencil printable, B-stageable, good thermal and electrical conductivity	5,792	272
		LOCTITE ABLESTIK 8008MD		3,880	440
Lid or Cap Attach	Solder Paste	LOCTITE GC 10	Pb-free, no-clean, halogen-free, RT storage, long term stability	N/A	N/A
Glob Top	Non-Conductive Liquid	LOCTITE ECCOBOND FP 4802	Good flow, 260°C compatible	13,000	N/A
		LOCTITE STYCAST EO 1058	High T _g , low CTE	4,800	N/A
Underfill	Non-Conductive Liquid	LOCTITE ECCOBOND UF 8830S	Good flow with self filleting, bleeding control, 260°C compatible	11,500	350
	Non-Conductive Paste	LOCTITE ECCOBOND FP 5201	Self fluxing, high T _g , low CTE	5,800	N/A



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