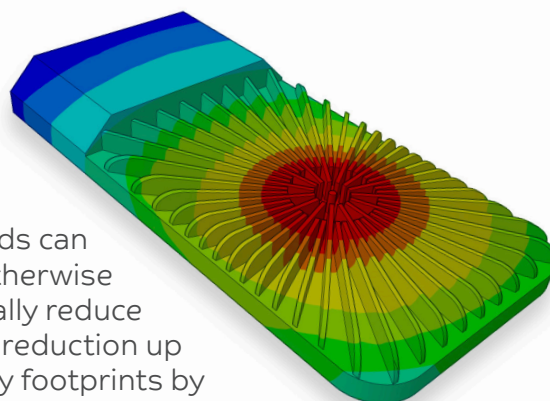


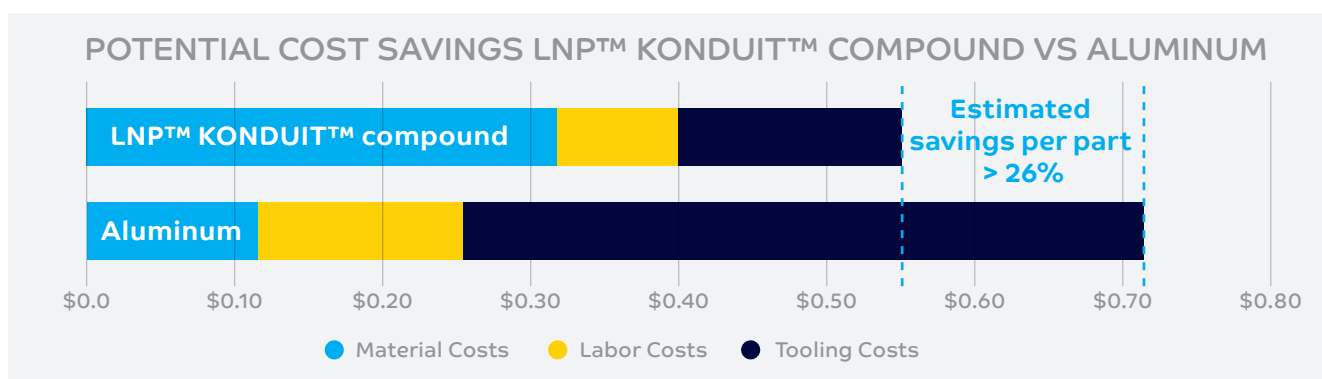
## RETHINKING YOUR HEAT SINK MATERIALS

The future of automotive lighting will make way for significant innovation around current LED solutions. At a time when space is at a growing premium due to integration of sensor suite components and heat sinks are increasing in size, future iterations of lighting must consider novel ways to dissipate heat at a competitive cost. LNP™ KONDUIT™ compounds are a cost-effective, resource-efficient heat sink solution that can contribute to the scaling of LEDs.



Producing LED heat sinks using LNP KONDUIT compounds can help manufacturers avoid time-consuming processes otherwise required when using die cast aluminum and can potentially reduce associated costs by approximately 20%, provide weight reduction up to 30%, and decrease greenhouse gas (GHG) and energy footprints by up to 87%, while allowing for significant design freedom.

Through proper design, the performance of aluminum heatsinks can be matched by thermally conductive polymeric heatsinks. By leveraging the use of Computational Fluid Dynamics (CFD) software, the effect of design iterations on the overall thermal management can be predicted and the timelines for development can be significantly reduced. Furthermore, SABIC can provide additional design assistance, utilizing our Global Application Technology services, to drive innovation for cutting-edge LED lighting systems.



### COMPLIANT CHEMISTRY

LNP KONDUIT compounds comply with the RoHS Directive (2017/2102/EU), the Joint Industry Guide (JIG), the IEC ‘halogen-free’ standard (IEC 61249-2-21). LNP KONDUIT compounds do not include any of the Substances of Very High Concern as specified under the REACH Regulation (EC 1907/2006).

### NO PAINTING NEEDED

LNP KONDUIT compounds are available in multiple colors, which can eliminate the need for a separate painting process otherwise required for die cast aluminum.

# LNPTM KONDUITTM COMPOUNDS PORTFOLIO

Thermal Conductive	Light Color	Electrical Isolative	UL94 V0	PX11311U	K = <b>1.5 W/m-K*</b> , <b>0.8 W/mK</b> UL94-V0 @ 1.0mm
				PX13322	K = <b>3.3 W/m-K*</b> , <b>1 W/mK</b> UL94-V0 @ 0.8mm
				PX11313	K = <b>1.9 W/m-K*</b> , <b>0.9 W/mK</b> UL94-V0 @ 0.8mm, RTI = 105C
	Light & Grey Color	Electrical Isolative	UL94 HB	DTK22	K = <b>2 W/m-K*</b> , <b>0.6 W/mK</b> UL94-HB @ 0.5mm GWFI 850C @ 0.8mm
				PX13012	K = <b>5.5 W/m-K*</b> , <b>1.2 W/mK</b> UL94-V0 @ 0.8mm
	Dark Color	Electrical Isolative	UL94 V0	OX11315	K = <b>13 W/m-K*</b> , <b>0.8 W/mK</b> UL94-V0 @ 1.5mm, RTI = 130C UL746 F1, based on PPS
				UL94 HB	PX10323
		Electrical Conductive	UL94 V0	OX10324	K = <b>18 W/m-K*</b> , <b>1.3 W/mK</b> UL94-V0 @ 1.2mm, RTI = 130C

\* Thermal conductivity measured with Hotdisk TPS2500 In-plane with a 3mm plate (60 by 60mm, film-gated). Non-brominated, non-chlorinated, flame retardant system

**PX: PA6 based**  
**OX: PPS based**  
**DTK: PC based**

**Inplane, through plane**

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