矽晶科
XI JING KE

COMPANY BROCHURE

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矽晶科
XI JING KE

ANHUI SIJINGKE PHOTOELECTRIC TECHNOLOGY CO., LTD.

矽晶科
XI JING KE

INTEGRITY VIRTUE

UNITY QUALITY

INNOVATION ALTRUISM

COMPANY PROFILE

Anhui Sijingke Optoelectronic Technology Co., Ltd., located at No. 7, Migrant Workers Returning Home Entrepreneurship Park, Huoshan County Economic Development Zone, Lu'an City, Anhui Province, has a factory area of 15 acres and is certified by ISO9001, IATF16949 and other certifications. The LED micro module products have obtained certifications such as China 3C and Europe ECE. The company has set up a 1300 square meter, 300000 level LED micro module product dust-free assembly line workshop, constant temperature and humidity PCB board electronic warehouse, quality assurance laboratory, and light distribution room Electrical performance room, clean silicon plastic injection workshop, and mold processing workshop. Equipped with automotive lighting fixture light distribution performance testing machine, precision intelligent light detector, light color distribution performance measurement machine, LED module light color electrical testing machine, LED lights and lighting fixture accelerated aging life testing machine, automotive electronic immunity testing machine, power failure simulator, 8 Austrian Weimeng Barton silicone injection machines, 8 Austrian ELMET glue supply machines, RD design open cold runner silicone mold technology team Technical team of silicone injection machine, PhD in optical design of LED micro module, and PhD in electrical control design of LED micro module.

Features of LED mini module products: light, thin, small, and bright. The product can be used in the headlights of cars, motorcycles, buses, trucks, trucks, trains, subways, and other vehicles at the same time. It has strong commonality and can share LED beads of any brand. The product has applied for two invention patents and one utility model.

The main project is LED mini module products, LSR liquid silicone open cold runner mold design (with the same technical level as Europe), LSR liquid silicone mold precision manufacturing, LSR liquid silicone products are injected into OEM/ODM. The inner and outer lens optical products produced by this design mold (using Dow Chemical MS-1002 high transparency silicone material)have undergone high temperature testing at 230 ° C and low temperature testing at -40 ° C.After cold and hot cycle testing, the inner and outer lens products do not yellow orcrack,making them more suitable for use in various car models.

COMPANY CULTURE

Integrity

Treat people with sincerity, with the letter of this

Virtuous

Self–improvement, the virtue of carrying goods

Unity

Without public praise, no peak can be achieved

Quality

XJK quality, lasting new

Innovate

Continuous R & D, sustainable development

Altruism

Win–win cooperation ben efits all sentient beings

CONTENTS

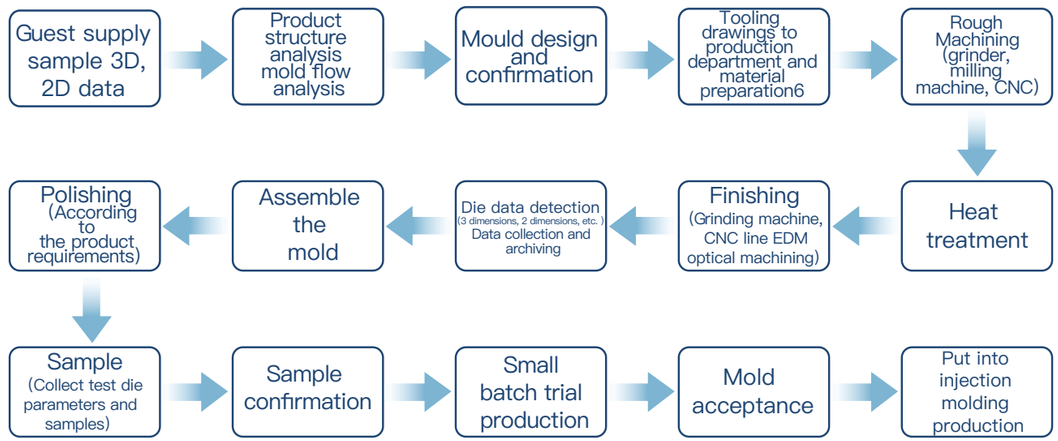
CONTENTS

SILICA GEL

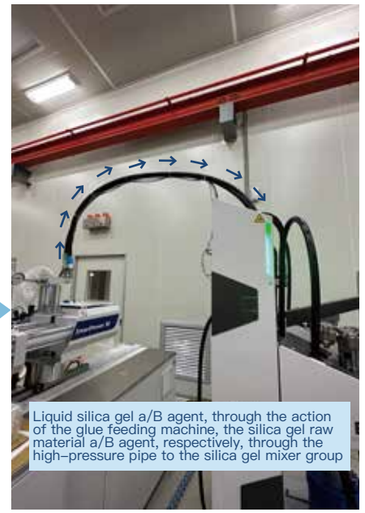
DEVELOP LAUNCH INTRODUCTIONS

- LSP liquid silica gel design and development of open cold sprue, with the same level of technology as Europe
- LSR liquid silica gel mold precision manufacturing
- LSR silicone injection molding ODM/OEM

INTRODUCTION OF MOULD MANUFACTURING PROCESS



LIQUID SILICONE (LSR) MANUFACTURING PROCESS



LSR LIQUID SILICONE IS INTRODUCED

Injection molding liquid silica gel (LSR) is a new kind of organic silica gel material, which is non-toxic, tasteless, weatherproof and chemically inert. This kind of silica gel has low viscosity (it has certain fluidity and irformability before vulcanization) , uses Elmet rubber feeding machine to mix AB agent, Weimeng Barton silica gel machine to mix two groups of AB agent and inject mould, then rapid vulcanization,injection molding products.

- High and low temperature resistance (use temperature from -40 ° C, +230° C, cold and heat cycle test, the product is not yellowing)
- Good weather resistance (UV resistance)
- Good waterproof
- Good electrical characteristics
- High light transmittance
- Elastic, malleable
- Safety recognition(FDA, NSF,Mil,UL)
- High degree of automatic molding
- There are no by-products during vulcanization
- The product has a long service life during vulcanization

Why use optical grade silicone

Today, the development of cutting-edge high-power LED technology is facing new challenges. The new generation of leds will need to maintain their optimum luminescence and lumen values over time and be able to be used in micro-structural design at compact sizes; however, these requirements present a major challenge to the current optical plastic components. On the contrary, optical silica is the material that can provide optical transparency, durability, and design hyperboloid and free-form surfaces.

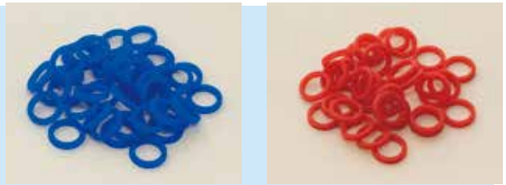
The advantageous properties of silica gel materials

High light transmission Can meet the design requirements of transparency, atomization, and astigmatism, with excellent results.

Luminous flux loss In the hot and humid environment, can maintain a variety of lens projection accuracy.

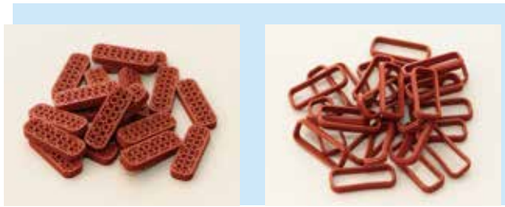
Durability UV resistance and crack resistance is very good; high temperature stability,-showing that it can maintain a good long-term luminescence, and will not cause problems such as heat-resistant plastic yellowing.

SILICONE PRODUCTS



Self–lubricating liquid silica gel ejecting O–ring & Seal Ring of automobile and locomotive connector

Waterproofing hydrants & rings

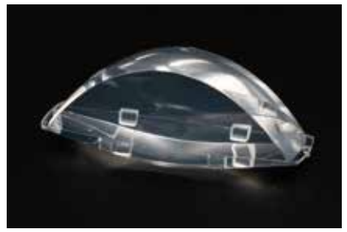


DOW CHEMICAL MS1002 SILICA GEL OPTICAL LENS

HB inner lens

LB inner lens

Automotive Lens

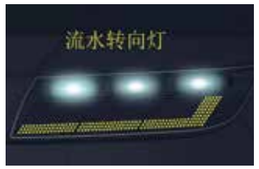


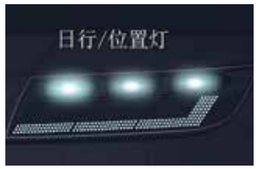
outer lens

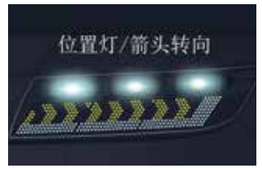
Bi–lamp inner lens

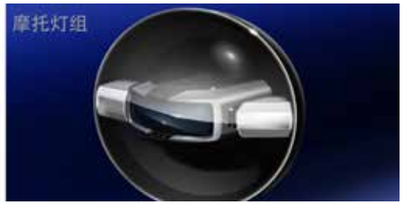
The light guide pillar of auto–mobile daily running lamp

ACTUAL CASE: LED MICRO MODULE PRODUCT APPLICATION









- The flattening of modeling emphasizes the features of a car,which not only beautifies itself but also adds the functions of car–to–driver, driver–to–car, car–to–car com–munication.Hence it is essential to reduce the size of xaxis and zaxis.The car needs a new optical system to go well with an electronic process,which is also prepared for radars and cameras.
- The designing concept of biomimicry possesses unique expression of art, which nowadays is applied to the design process of car styling. The biomimetic design of car styling makes humans feel intimate. The development in the future is bound to be more emotional, user–friendly, and iconic.3

The development trend of headlights Light, thin, small, bright

Diversity of car styling

Nowadays, consumers have a higher standard of head–lamps.The products should meet the basic needs of func–tions, pursuing personaliz ation and aesthetics.

Emphasis on modeling, weakening clothing

- Car designers put more emphases on car styling and design aesthetics, and ignore the design of illuminating module. The style design draws more attention.
- The industry rolls out new light source constantly. It helps car designers enhance the effect of illumination, but also more possibly reduce the area of headlamp.

ACTUAL CASE: CAR LIGHTS DAILY RUNNING LIGHT SILICONE USE CASE

R&D TEAM

- **Lin Wenzhi** doctor of photoelectricity

  Expertise Optics, electronics, film

  Published 8 articles in international journals

  Has photoelectric patents, more than ten items

  Design over 500 LED-related light sources and applications

- **Zhuang Wenlong**

  Central Plain University Mechanical Engineering/ Shixin University Master of Business Administration

- **Zeng Ren**

  Dayi, TYC, Depo, Taiwan Haila and many other listed companies lamp factory, R & D Director

  More than 500 project designs and developments have been certifed by ECE/SAE

  Qinhuangdao Great Wall Glassqingdao Zhouqing Industrial Design, general manager

  Hebei Zhongxing Motor Changzhou Damaozhejiang Tianchongchongqing Qinchuan and other auto factories, lighting factory consultants

R&D TEAM

- **Wu Jianxing**

  Expertise Modeling design

  Experience Director of Taiwan Ford designer, SAIC Several models of modified design, Audi Abt designer, a number of electric vehicle styling design

- **Zhang Wenyu** Master's in Kangnam University, optical physics

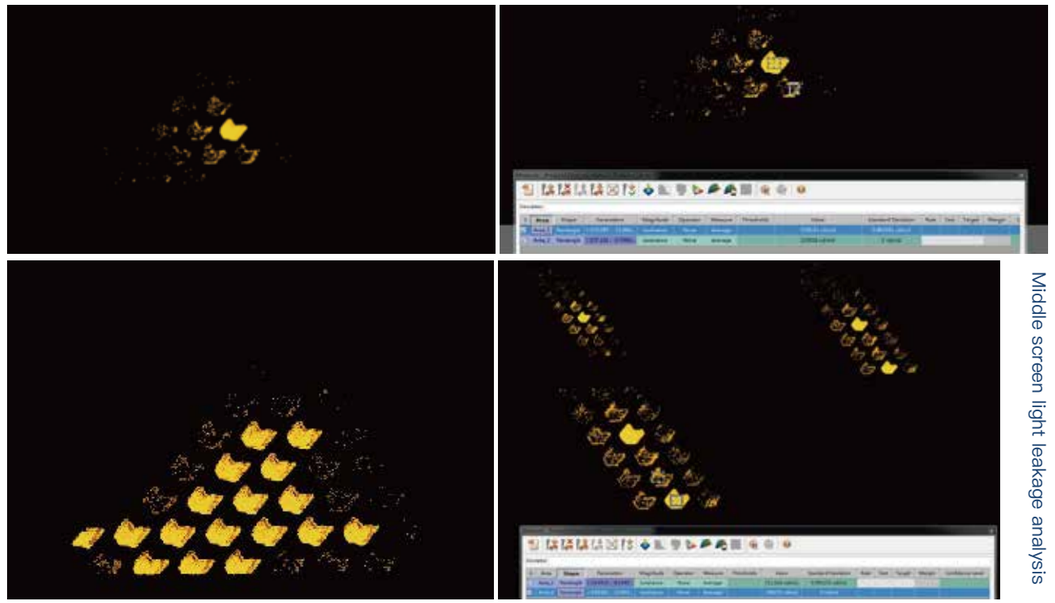
  Experience Jilly, BAIC, Chery, Jianghuai and other models, vehicle lamps, optical design

- **ZhengRuiqing**

  LSR liquid silica gel open cold runner mold design and development, with the same level of European Austria technology.

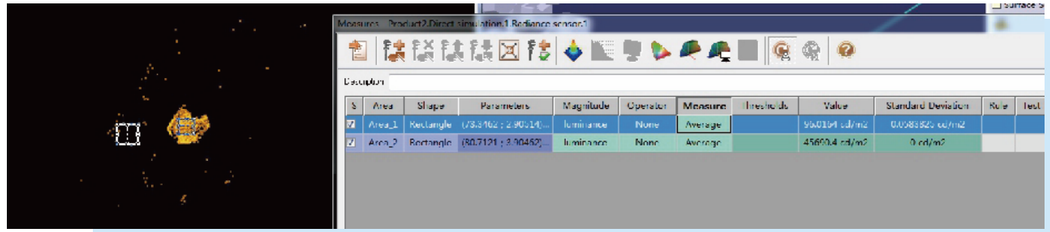
EXPERIMENTAL DATA

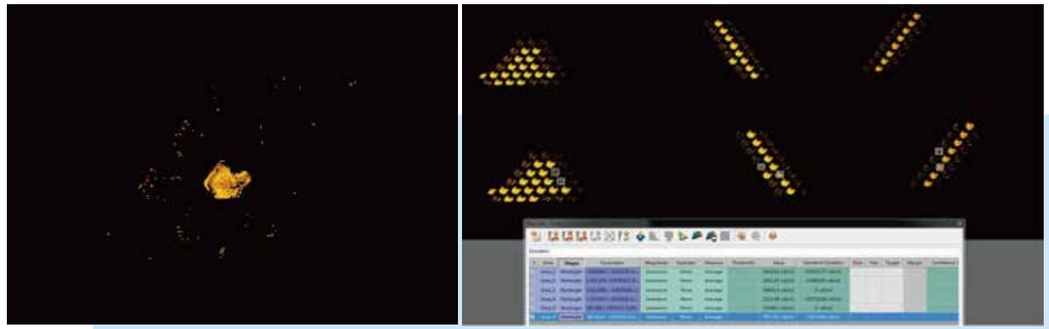
Leftmost screen leak test



Middle screen light leakage analysis

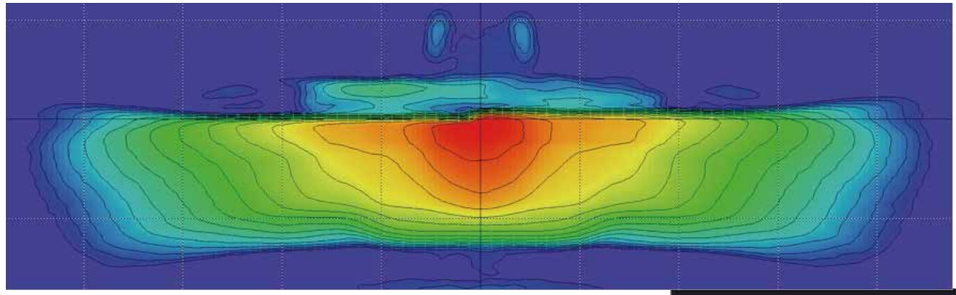
EXPERIMENTAL DATA

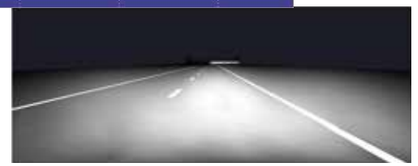




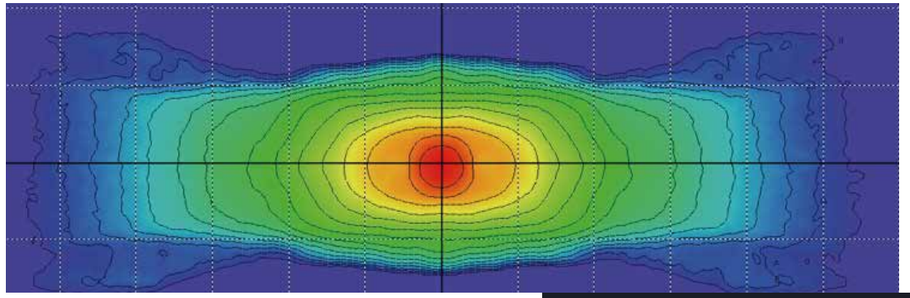
EXPERIMENTAL DATA

Use GIAT conventional chip single near-light 25M illumination

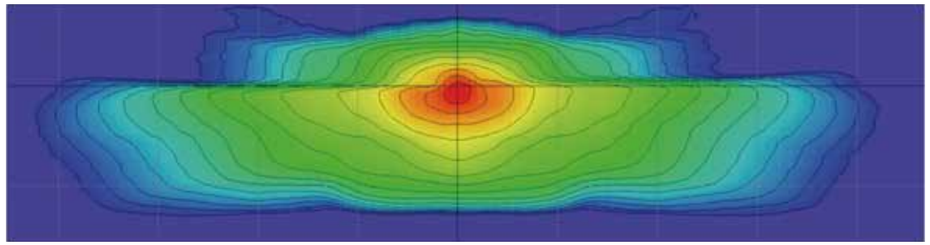




Use GIAT conventional chip single beam 25M illumination

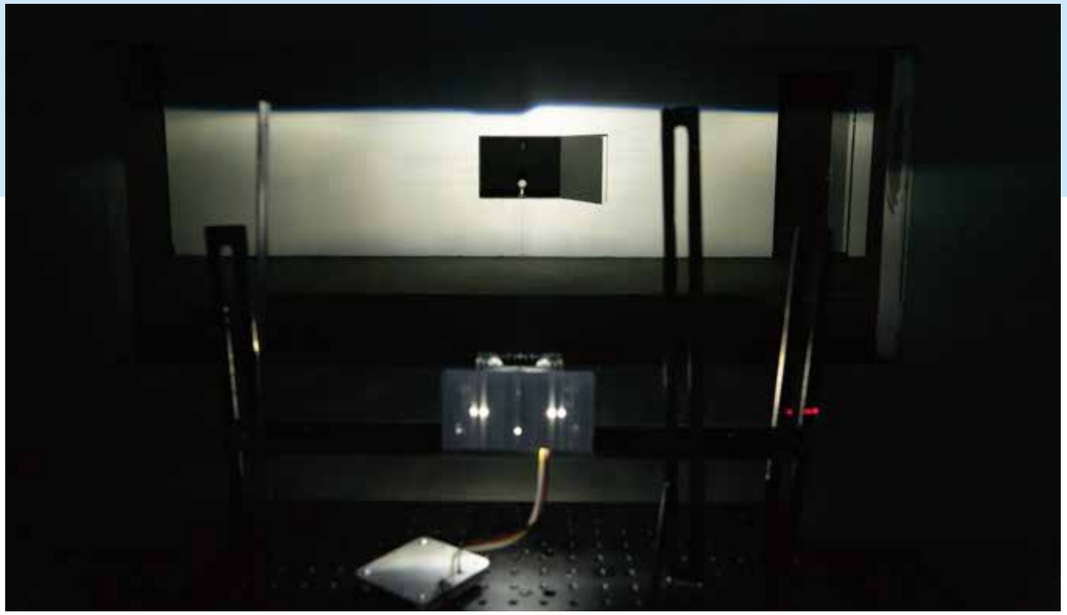


Using the GIAT conventional chip near-light+High beam 25M



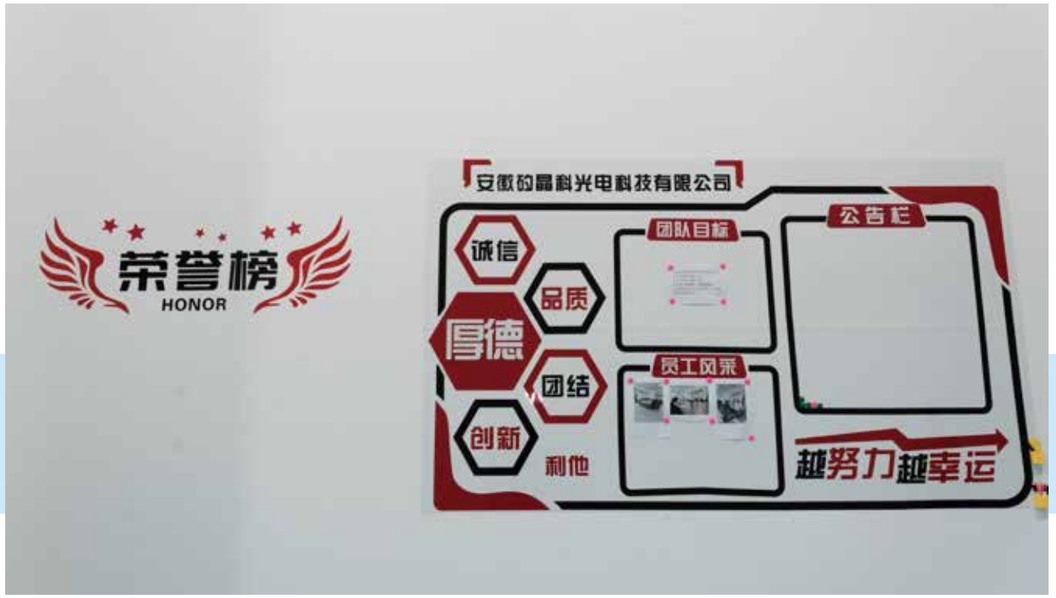
EXPERIMENTAL DATA

Light type effect diagram of light distribution chamber



Show the lamp effect diagram

WORKING ENVIRONMENT



PRODUCTION ENVIRONMENT
MOLD PROCESSING WORKSHOP

PRODUCTION ENVIRONMENT – INJECTION MOLDING MACHINE SILICONE MACHINE PRODUCTION WORKSHOP

PRODUCTION ENVIRONMENT – CONSTANT TEMPERATURE AND HUMIDITY WAREHOUSE

PRODUCTION ENVIRONMENT – SMALL MODULE CLEAN WORKSHOP

PRODUCTION ENVIRONMENT – LABORATORY

PRODUCTION ENVIRONMENT – LABORATORY

PRODUCTION ENVIRONMENT – LABORATORY

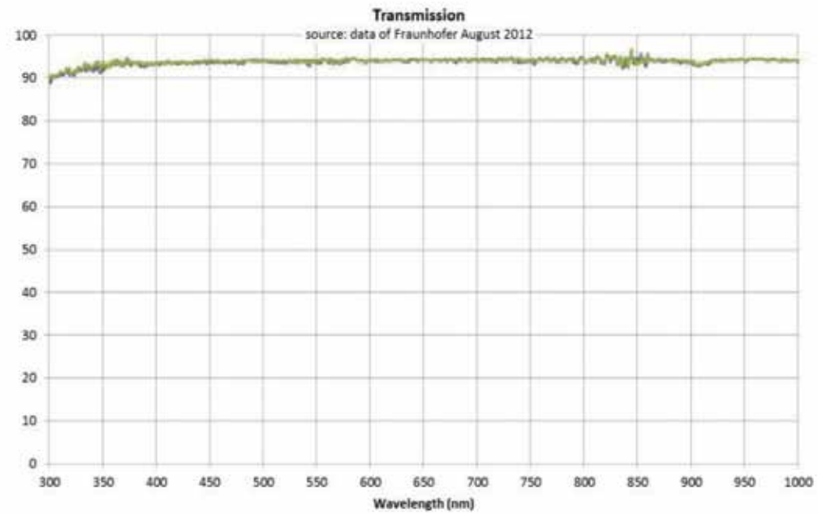
COMPARATIVE ADVANTAGE: COMPARISON TABLE OF PROPERTIES OF THREE LENS MATERIALS

	GLASS	PLASTIC	SILICONE
Temperature Resistance	Excellent , >200°	poor, <100℃	Excellent, >150℃
Weather Resistance	Excellent , Not easily yellowing	poor , Easy yellowing	Excellent , Not easily yellowing
Specific Gravity	Higher , About 2.5	Low , About 1.2	Low , About 1.1
Mechanical Strength	Higher, fragile	Higher	Low, The strength is better
Processing Molding	It is difficult to process, and not suitable for producing sophisticated products	Easy processing, forming time has long burrs	Easy Processing, short forming time after the realization of automated production
Molding Process	Melt cooling	Thermoplastics	Thermosetting
Yield rate	Low, easy to produce defects when grinding	Low,Products with low length ratio and thickness are prone to poor shrinkage.	High
Transport	High cost	Low cost	Low cost
Packaging	High cost	Low cost	Low cost
Environmental Protection	A lot of wastewater and dust will be produced in the production process and post-polishing.	A lot of waste materials surplus materials and bad products will be produced in the production process.	Using the cold runner mold, it can be waterless, waste free, burr free, and non-toxic

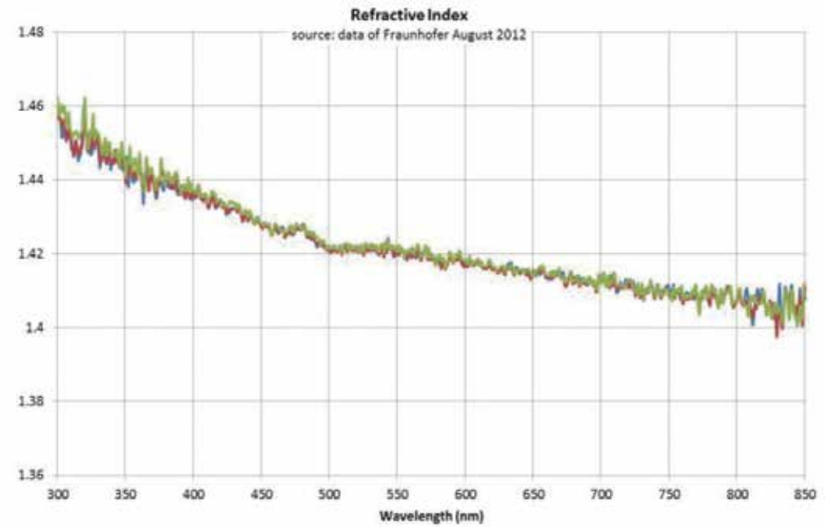
COMPARATIVE ADVANTAGE: COMPARISON OF OPTICAL MATERIALS

CATEGORY	FEATURES	LSR	PC	PMMA	GLASS
Light Transmittance (2mm)	Transmittance (%)	94~95	86~89	89~92	92
	Refractive index(RI)	1.53,1.41	1.59	1.49	1.5~1.6
	Atomization degree (%)	<1	1–3	2–4	–
	Abpe number (dispersity)	50	34	57	39~59
	Yellowing degree	<1	1.0~3.0	1.0~3.0	–
Durability	Heat resistance	Execllent	Poor	Poor	Execllent
	UV resistance	Execllent	Poor	Good	Execllent
Design Freedom	Complicated /Microstructure	Execllent	Good	Good	Good
	Material elasticity	Execllent	Poor	Poor	Poor
	Lightweight design	Execllent	Good	Good	Poor

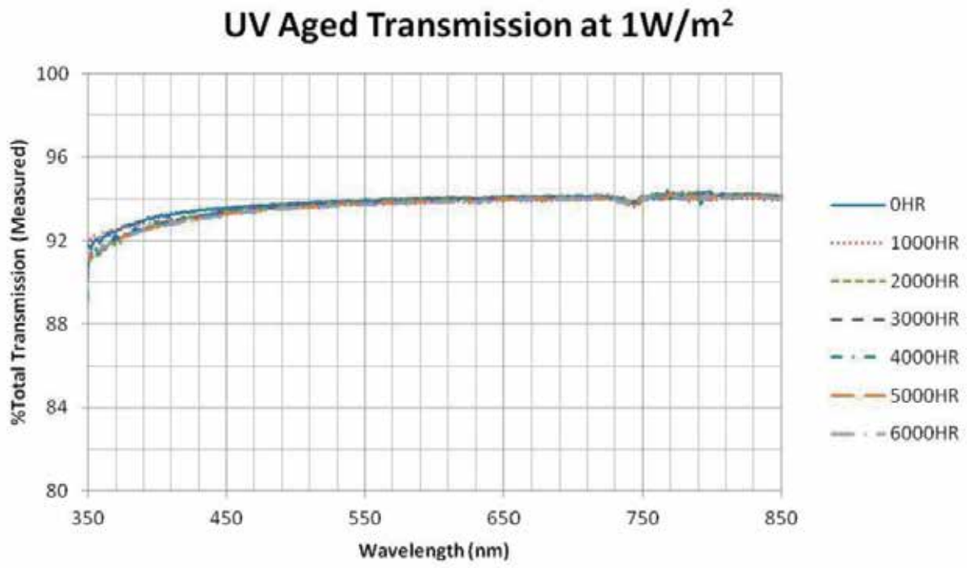
LSR LIQUID SILICONE IS INTRODUCED



COMPARATIVE ADVANTAGE: REFRACTIVE INDEX OF LIQUID SILICA GEL



COMPARATIVE ADVANTAGE: UV AGING TEST OF LIQUID SILICONE



COMPARATIVE ADVANTAGE

The advantage analysis of inner and outer lens optical products of LED miniature module using Dow Chemical MS1002 silica gel and PC, PMMA lens materials:

- LSR liquid silica gel lens product advantages, light shape no spot, no halo, no blue light, no yellow light, no bubble, light transmittance 94 ~ 95.
- Silicon small module products, because the small module size, LED lamp beads and the distance between the particle size will be reduced, reduced light will focus, focus small module products will be hot, PC lens material can not withstand high tempera–ture, long–term in high temperature environment, PC lens will melt deformation, but silica gel lens products can withstand 230 degrees of high temperature, so in high temperature environment will not melt deformation.
- The product size is stable, shrinkage is stable, curvature consistency is stable.take any inside and outside lens product test light type no blue light, no halo.

Certification certificate


DAS CERTIFICATION

DAS CERTIFICATION

Quality Management System
Certificate of Approval

This is to certify that the QMS of

Anhui XiJingKe Optoelectronic Technology Co., LTD
Unified Social Credit Code:91341525MA8PJJLF6N

No. 7, Pioneering Park for Migrant Workers Returning Home, Economic Development Zone, Huoshan County, Lu 'an City, Anhui Province

Has been assessed and found to meet the requirements of
GB/T 19001-2016/ISO 9001:2015
This certificate is valid for the following scope of operations:

Manufacturing of Auto Lamps (export)

CERTIFICATION

Date of Certificate Issue: Apr, 12, 2023
Certificate Valid Until: Apr, 11, 2026
Certificate Number: QM192304027

The validity of the registration will be continued only when the organisation passes annual surveillance audit.
Check the validity of the certificate at www.cnca.gov.cn or www.das-china.com
Surveillance Audit Pass Mark:

Authorized by: Chief Executive

SHANGHAI DAS CERTIFICATION CO.,LTD

Shanghai DAS Certification Co., Ltd.,
Add: 505, Tower.2, Guoson Center, No. 388, Zhongjiang Road, Shanghai, P.R.China, 200062
Tel: 0086-21-62773910 Fax:0086-21-62080319
Web: http://www.das-china.com
Email: info@das-china.com
UK Head Office:DAS Certification Limited, trading name of
SN Registrars (Holdings) Limited
ADD: Registration House, 22b Church Street
Rushden, Northamptonshire, NN10 9YT, UK
Tel: +44(0)1933 381859
Email: info@dascertification.co.uk
Web: www.dascertification.co.uk
Company Number：07659067

ISO 9001

Certification certificate

TÜV SAARLAND

CERTIFICATE

The management system of

Anhui Sijingke Optoelectronic Technology Co., Ltd.
7# Entrepreneurship Park for Migrant Workers Returning Home, Economic Development Zone, Huoshan County, Lu'an City | 237200 Anhui | China
(IATF USI: YGK SCR)

has been assessed and certified as meeting the requirements of:

IATF 16949:2016
(1st edition, 01/10/2016)

Scope of certification:

Design and Manufacture of LED Lamps Micro-Module

with product design responsibility

Issue Date 23/04/2024
Expiry Date 22/04/2027
Certificate No. CB00803
IATF registration No. 0513034

Dipl. Wirtsch.-Ing. (FH) Thorsten Greiner, Managing Director
TÜV® Saarland Certification GmbH
Am TÜV 1 | 66280 Sulzbach/Saar | Germany
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Release Date: 23/04/2024

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Certification certificate

INGEER CERTIFICATION ASSESSMENT SERVICES

ICAS 英格尔认证 INGEER CERTIFICATION ASSESSMENT SERVICES

ENVIRONMENTAL MANAGEMENT SYSTEM CERTIFICATE

Certification No: 117 24 EU 0083-05 R0S

This is to certify that: **Anhui Sijingke Optoelectronic Technology Co.,Ltd**

Unified social credit code: 91341525MA8PJJLF6N

Location: **7 # Entrepreneurship Park for Migrant Workers Returning Home, Economic Development Zone, Huoshan County, Lu'an City, Anhui Province**

The established MS conforms to: GB/T24001-2016/ISO14001:2015

Scope of approval: **Manufacturing of LED Lamps Micro-Module and Plastic Bottles for Daily Cosmetics**

Signed by:

First Certification: 21 May 2024
Expiry Date: 20 May 2027

Shanghai Ingeer Certification Assessment Co.,Ltd.
Certification and Accreditation Administration of PRC:CNCA R-2003-117
Tel: 400-633-9001 / +86 021-31114709
Web: www.icasiso.com
Add: Room 801,HuaDing Mansion, 2368# West Zhongshan Rd., Xuhui District, Shanghai, China, 200235

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