

Zhongshan Jvtech Silicone Technology Co., Ltd.

Jvtech

Guide of Baby Product Design



Professional Product Design

Starting with resonable Materials



Why Material Safety is Crucial for Baby Products

Safety and Harmlessness are the Basics

Baby products come into direct contact with the baby's mouth and skin, so material safety must meet the required standards.

The materials should be free from harmful additives such as BPA, BPS, and phthalates. VOC (Volatile Organic Compounds) emissions should be strictly controlled to prevent toxic gases from being released during heating.

It is recommended to choose materials that have been certified for food contact, such as FDA, LFGB, and REACH certifications.

Tear-Resistant and Bite-Proof, Soft and Gentle on the Mouth

Oral-contact products for infants, such as teethingers and pacifiers, require materials that are both soft and skin-friendly while offering excellent tear resistance.

The material must withstand repeated biting without cracking or shedding particles, ensuring a safe and risk-free user experience.

Heat-Resistant and Durable, Not Easily Deformed

In everyday maternity and baby care, mothers often sterilize products at high temperatures before use. Therefore, materials must possess excellent thermal stability and long-term durability. Commonly used materials include PP, PA, PPS, PPSU, solid silicone rubber, and liquid silicone rubber (LSR).

In addition, materials must exhibit strong resistance to aging and hydrolysis to withstand high temperatures, humidity, and repeated use in complex environments.

It is important to note that not all materials are suitable for microwave heating. Currently, we have certified PPSU and liquid silicone rubber as safe for use in microwave environments.

Maternity and baby products are in constant contact with the baby's mouth and skin, so it is essential to ensure the material is safe. Additionally, the material must be suitable for various usage scenarios and possess key properties such as high-temperature resistance and bite resistance.



Compared to traditional materials, liquid silicone rubber (LSR) is safer and more durable, making it one of the emerging trends in materials used for maternity and baby products.

Liquid Silicone Rubber (LSR) is a new type of polymer material. It is non-toxic, odorless, free from BPA and plasticizers, and compliant with environmental standards such as RoHS and REACH. It has a long service life, excellent heat resistance, and strong dimensional stability, functioning reliably in a wide temperature range from -40°C to 200°C . With a Shore A hardness range of 5A to 80A, it is suitable for daily use scenarios such as high-temperature sterilization, hot water rinsing, and steam disinfection. This makes it more aligned with today's green consumption trends.

Compared to traditional solid silicone rubber, Liquid Silicone Rubber (LSR) offers more significant advantages in maternity and baby products. LSR features superior flowability and molding precision, making it ideal for integrated designs with complex structures. This helps reduce component assembly and lowers the risk of contamination. Moreover, LSR enables more efficient automated production with greater stability and consistency, better meeting the dual demands of safety and production efficiency in the maternity and baby industry.



Every baby-grade silicone product is rooted in a deep understanding and strict adherence to global regulations.

Key Regulations for Baby-Grade Silicone Products

- GB 4806.11-2016: Silicone Rubber Materials for Food Contact Use (China)
- GB 9685: Standards for the Use of Additives in Food Contact Materials (China)
- FDA 21 CFR 177.2600: Regulations for Elastomers Used in Food Contact Applications (USA)
- EN 14350: Safety Requirements and Migration Testing for Infant Drinking Equipment (EU)
- LFGB: German Food Contact Material Regulation, focusing on odor and taste migration
- REACH / RoHS: EU Environmental Regulations Restricting the Use of Hazardous Substances
- Additional Infant Safety Requirements: Mechanical safety standards including anti-detachment, anti-swallowing, and no sharp structural design

Jvtech has been deeply involved in the maternity and baby liquid silicone rubber industry for many years, and we have a profound understanding of regulatory systems international markets. We are well-versed in applicable standards for food contact and infant products, enabling us to assist clients during the early stages of product development with regulation alignment and risk assessment—helping avoid certification failures or product returns due to material non-compliance or design flaws.

During the actual delivery process, Jvtech can provide clients with necessary testing documentation, such as raw material FDA & RoHS certificates, MSDS safety data sheets, and other third-party inspection reports.

Jvtech has obtained multiple international certifications, including ISO 9001, ISO 13485, ISO 14001, and ISO 45001. The company is equipped with a VOC emission control room (with industry standards requiring levels below 0.5; Jvtech achieves output test values under 0.35), as well as a Class 100,000 cleanroom for 100% product inspection and a quality laboratory to meet mainstream testing standards in the baby care industry.

Design Highlights (Applicable to Babycare Products)

By selecting appropriate P+R (Plastic + Rubber) materials and combining them with optimized structural design, it is possible to significantly enhance user experience and manufacturing efficiency. Balancing quality and cost, this is a key focus during the R&D phase



Key Point 1: Easy to Clean

- Avoid structural dead corners to prevent the buildup of milk residue and saliva.
- Detachable structure for thorough cleaning by parents.
- Smooth surface with no burrs, making it difficult for stains to adhere.

Key Point 2: Soft Rubber Combined with MultiMaterials

- Enhance Functionality to Elevate Product Uniqueness
- Compatible with Boiling and Steam Sterilization Cleaning
- Supports Complex Shape Designs for Distinctive Differentiation



Liquid Silicone Raw Material

Since its establishment in 2012, Jvtech has been deeply engaged in the liquid silicone rubber (LSR) industry. We have maintained long-term close partnerships with globally renowned LSR manufacturers, aiming to provide the most cost-effective material selection and processing solutions while ensuring product safety and meeting customer needs. In addition, we support precision injection molding of high-performance polymers such as PP, ABS, PPSU, PEEK, and POK.

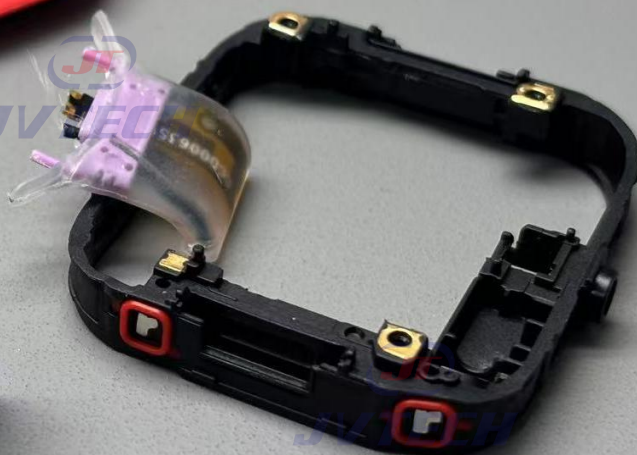
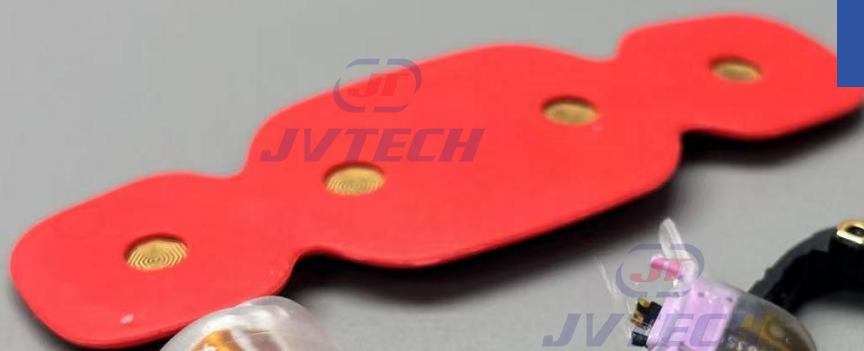




P+R: Overmolding Structure of Silicone and Plastic, Providing Optimal Adhesion.

LSR+FPC: Liquid Silicone Rubber Overmolding on Flexible Printed Circuits, Suitable for Smart Wearables and Breast Pumps

LSR+LSR: Dual-layer silicone with different colors and hardness levels to enhance product uniqueness.



Why Choose Jvtech as Your Supplier?



Mold Manufacturing

Equipped with advanced precision machining capabilities including 5-axis machining, precision grinding, and wire EDM, achieving machining tolerances of $\pm 0.003\text{mm}$.

Led by a professional mold design team with 20 years of experience in liquid silicone rubber mold.

Injection Molding Workshop

Three Class 300,000 workshop are fully equipped with robotic arms, and special workstations are equipped with six-axis robotic arms. The facility supports precision injection molding, LSR 2K molding, and Overmolding.

Quality Control

Certified with
ISO9001/13485/45001/14001

We have established a quality control laboratory responsible for full-stage monitoring of the production process.

Additionally, we have a Class 100,000 cleanroom for product inspection.

As a professional manufacturer, Jvtech has a complete service process: from material receiving, molding, post-treatment, inspection to final shipment, the whole process is controllable and the delivery is efficient.

At the same time, Jvtech has advanced production equipment, and the workshop is equipped with **70 LSR&Plastic injection molding machines (including several liquid two-color injection molding machines)**, which can meet diversified customer needs. Also equipped with a variety of testing equipment, such as optical microscope, CCD, tear resistance and tensile tester, video microscope, VOC detector and so on.

Jvtech's technical concept stems from the first-line experience accumulated by the founding team for more than 20 years. It is familiar with every link from product design, mold structure to mass production technology, pays attention to practicality and reproducibility, and is committed to providing customers with mass-producible, deliverable and repurchased solutions.

Our service

Our purpose: to keep our customers ahead of the industry all the time.

Please feel free to contact Jvtech. We provide the following one-stop supporting services:

- Mold design and manufacture
- LSR+Plastic precision injection molding
- Optical grade silicone parts
- LSR 2K molding
- Quality inspection
- Packaging and assemble service
- post-process treatment
(such as pad printing, UV illumination, hand oil, laser engraving, etc.)



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