Our VMX portfolio for the food processing industry

Seeing the opportunity in detectable engineered plastics

MITSUBISHI CHEMICAL GROUP

Mitsubishi Chemical Advanced Materials

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Increase safety and efficiency with the **VMX (Visual, Metal, X-Ray) portfolio**. Our new VMX polymers enhance your food processing capabilities by bringing three-way detectability and dual food compliance (EU and FDA). The range includes four unique polymers – each tailored to meet different performance requirements.

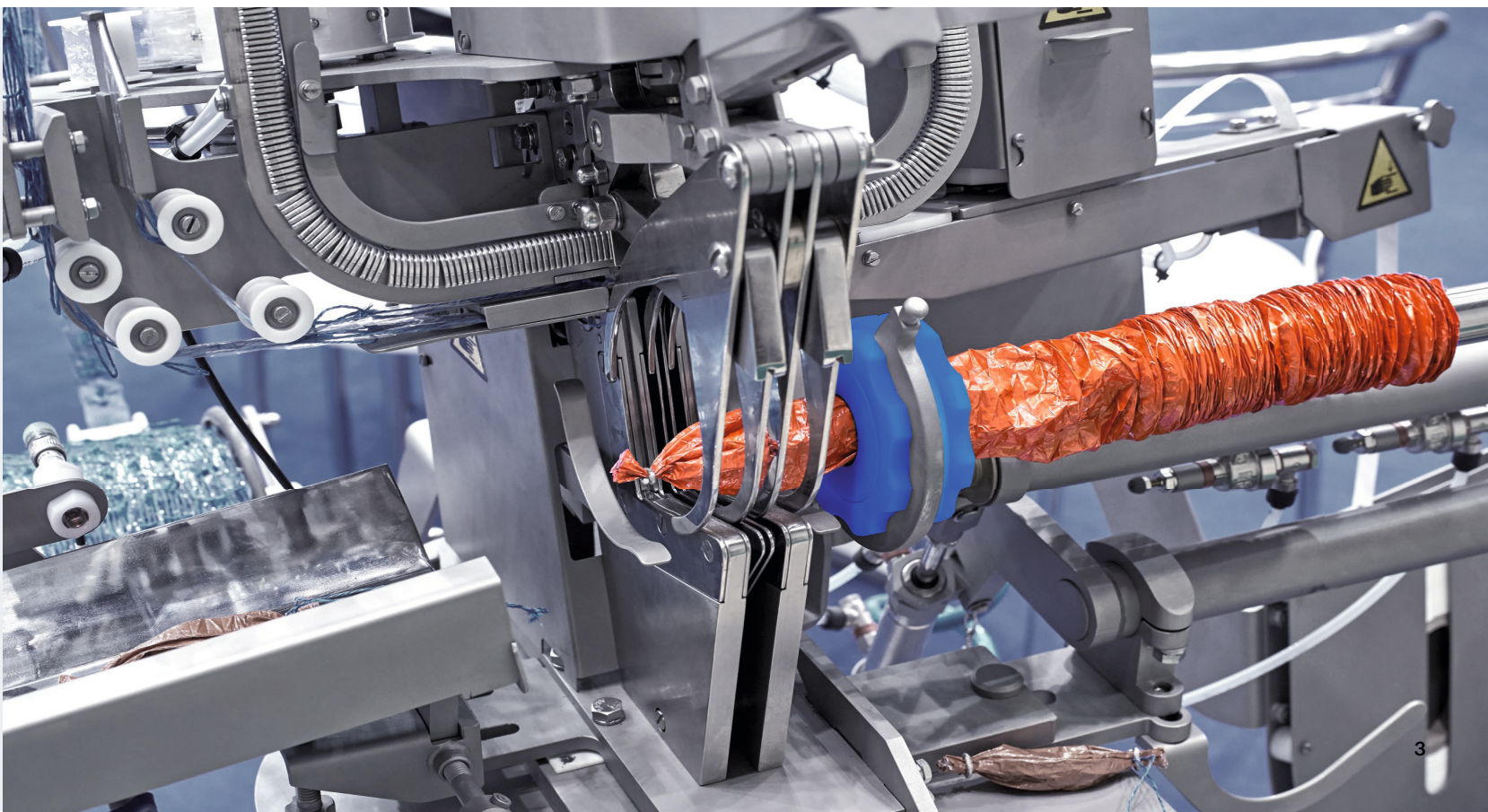
Better performance through a safety-first approach

Safety is the highest priority for processors and Original Equipment Manufacturers (OEM). Your reputation is banked on it. Contamination in a food product could mean food recalls, legal penalties, brand damage and even bankruptcy.

That's why food safety is always at the top of our agenda. But we also know that OEMs and processors face further challenges. Food processing speeds continue to increase. This in turn causes increased stresses on equipment, leading to potential failure of components which can risk food contamination in the long run. In order to improve food processing safety, the need for components that use high-performing, detectable polymers has never been greater.

Our new VMX polymers
A unique portfolio of materials for the globally evolving detection technology in food processing environments. Not only will they improve safety, but also help you to meet your sustainability targets and help improve your production capabilities with:

- **Higher processing speeds** – our plastics weigh 1/7th that of metals allowing for higher processing speeds.
- **Longer up-time** – our materials are self-lubricating which leads to less wear and reduces need for lubrication.



With you every step of the way

With the Advanced Materials Division of Mitsubishi Chemical Group (MCG), you have a reliable partner in your corner. From prototype to production, we make it possible for engineers to select the right materials to transform historical components into more efficient parts.

Our industry-leading experts can help you get your ideas to market faster and are committed to increasing the efficiency and safety of your individual food processes.

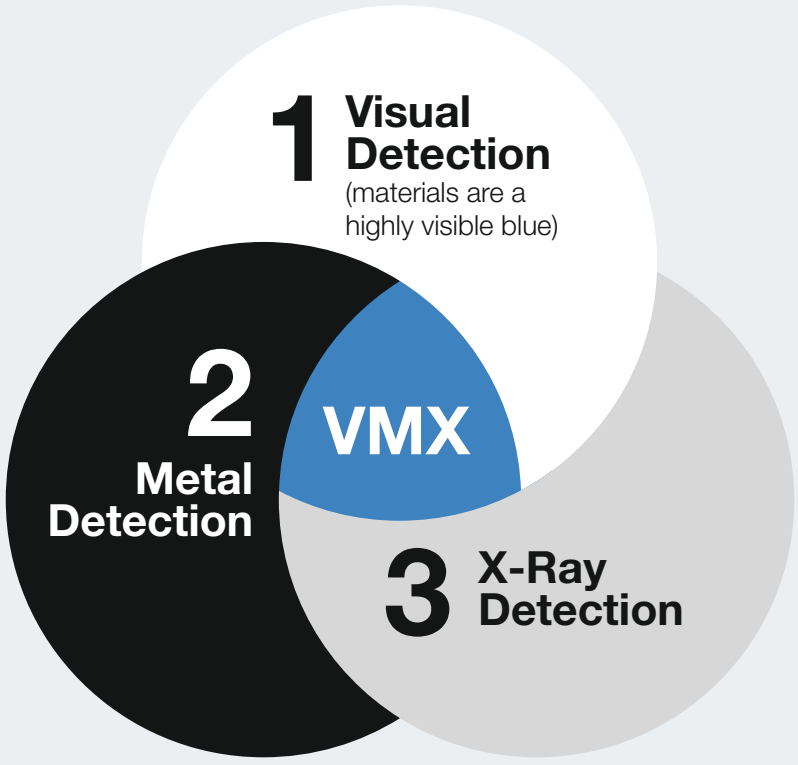
Ultimately, our detectable, food-grade compliant materials and wear-resistant parts help deliver food to the market safer and faster.

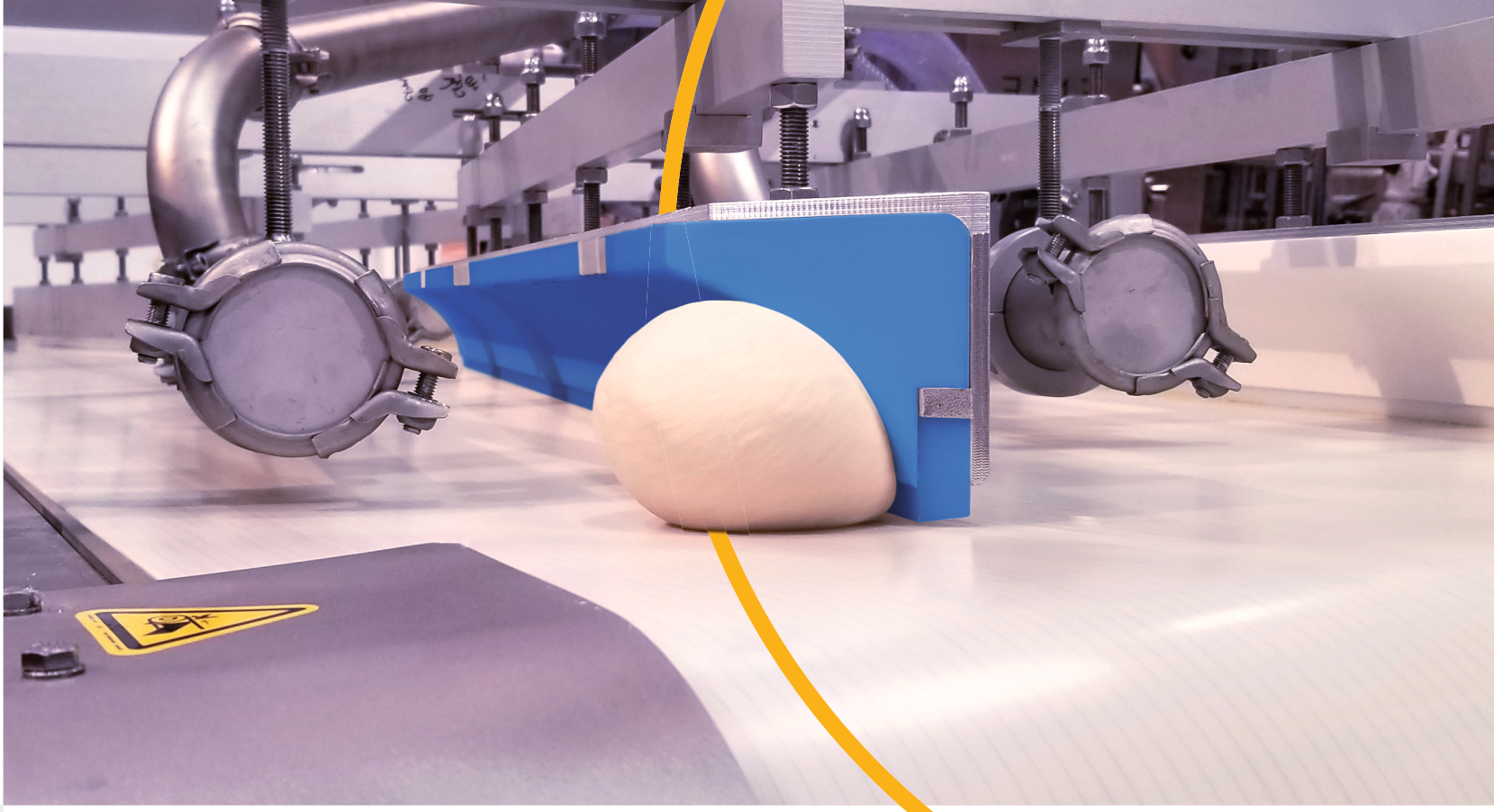
VMX portfolio

Our VMX portfolio spans much more than traditional metal detectable solutions. VMX products improve the safety and integrity of processing operations and food quality – having superior mechanical properties to help improve overall production efficiencies.

Three-way detectable materials

We are unique in the industry – the only company to offer a full range of food compliant materials that are detectable in three ways:





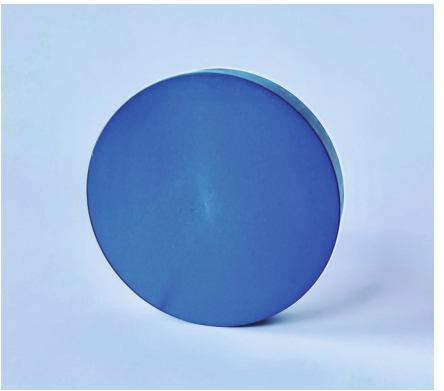
VMX Benefits

VMX has been developed and designed to support all food types and detection technologies. Leading global OEMs can benefit from the following unbeatable advantages:

- **Increased detection** via particle detection from 2mm* in Visual (materials are a highly visible blue), Metal and X-Ray.
- **Regulatory compliance** with FDA and EU 10/2011 Food Grade (all products come with migration test documentation) for use in food processing. Also manufactured within GMP guidelines.
- **High-quality material** is in stock globally. It is designed by our experts who truly understand the requirements of the food processing industry.
- **Resistance** to high temperatures and aggressive chemicals which would otherwise corrode metals – ideal for clean in place (CIP) and sanitize inplace (SIP).

*detectable size varies depending on food and technology type.

Discover a host of applications



Acetron® VMX Food Grade POM-C

- Optimal balance of stiffness and impact strength
- Superior dimensional stability
- Continuous use temperature up to 105°C (221°F)
- Highly visible blue color

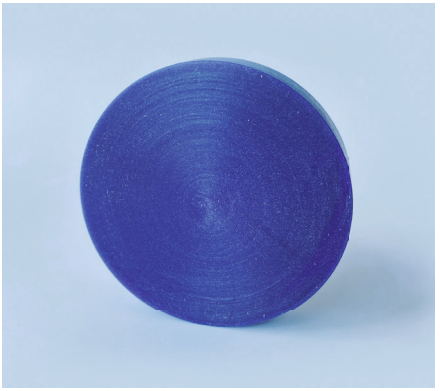
Applications

- Scrapers
- Funnels
- Guiders
- Grippers
- Gears
- Extrusion die
- Cutting blade

Acetron® VMX is making safer food possible

Recent state of the art testing by Mettler Toledo LLC Global has shown that our unique Acetron® VMX Food Grade POM-C thermoplastics outperformed all other leading brands as the most consistently detectable material across multiple food types and conditions. MCG Advanced Materials Division is the only company to achieve this with thermoplastic materials that combine three-way (Visual, Metal and X-Ray) detectability.

This makes our ground-breaking Acetron® VMX Food Grade material the leading industry choice for food safety and efficiency today.

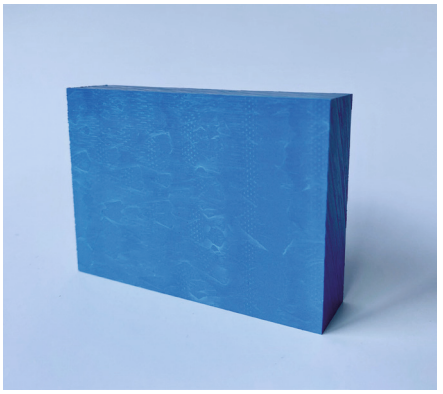


TIVAR® VMX Food Grade UHMW-PE

- Best in class impact resistance and low Coefficient of Friction
- Medium dimensional stability due to extreme low water absorption, but high Coefficient of Linear Thermal Expansion (CLTE)
- Good performance in acryogenic environment
- Excellent release properties
- Continuous use temperature
- up to 80°C (176°F)
- Highly visible blue color

Applications

- Chain guider elements
- Funnels
- Rollers
- Bushings
- Sprockets
- Mixing paddles

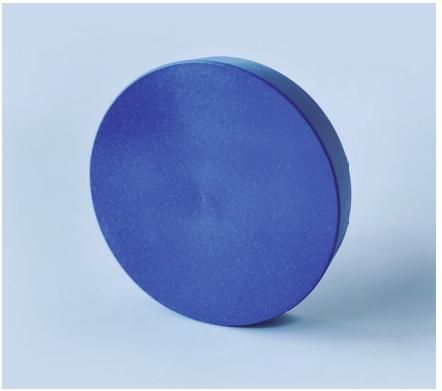


Nylatron® VMX Food Grade PA6

- High wear and fatigue resistance
- Lower moisture absorption than standard PA6
- Continuous use temperature up to 85°C (185°F)
- Highly visible blue color

Applications

- Thrust washers
- Seals
- Rollers
- Pulleys



Ketron® VMX Food Grade PEEK

- Used in applications where high line speeds require enhanced wear resistance or where operating temperatures are higher than 130°C (266°F)
- For multiple sterilizable machine parts, mainly in equipment with clean in place (CIP) or sterilization in place (SIP)
- Resistant to steam
- Suitable for food approved partsrequiring high stiffness without reinforcements
- High dimensional stability for high precision parts
- Enhanced impact/stiffness ratio
- Highly visible blue color

Applications

- Filling pistons
- Manifolds
- Valves
- Scrapers in cookers and high-temperature mixers
- Hot oil applications in fryers and ovens
- Thrust washers
- Guiders
- Bushings

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Please note
Please note that every material of the MCG Advanced Materials portfolio must be tested in the exact processing environment to assure proper particle detections. Results vary from different food types, type of detection technology and processing environments (temperatures, vibrations, electrical noise, etc.)

Visuals contained on page 4 of this publication utilized Mettler Toledo equipment and were captured at the Shawpak Systems Ltd. Centre of Excellence, where testing of the VMX materials was carried out.

Testing of MCG Advanced Materials' VMX products was carried out in 2021 at the Mettler Toledo LLC global headquarters, in Tampa, Florida USA using state of the art equipment.
