



## Emerging Liability Exposures in **Advanced Manufacturing: Plastics Production**

Advanced manufacturing is evolving exponentially. Companies across sectors now use AI-driven inspection, automated controls, predictive maintenance, and digital twins to increase speed, accuracy, and uptime. In plastics manufacturing, these technologies **directly impact product consistency and production continuity but also increase exposure to new risks.**

AI brings real improvements while simultaneously introducing liabilities that require risk programs to adapt quickly. As AI continues to be integrated into plastics manufacturing, exposure gaps and responsibilities evolve, and clarifying them demands attention.

### **With AI, Liability Has Shifted**

When a product liability claim or regulatory action occurs, all parties in the supply chain are still named. **What has changed is the number of decision-makers involved and the difficulty in identifying who made the decision.** In an advanced plastics manufacturing facility, a single event can involve:

- + The manufacturer
- + The robotics or automation vendor
- + The AI or software provider
- + Sensor, vision, or data platform suppliers
- + The systems integrator or maintenance contractor

AI driven process controls and robotics are transforming plastics by improving efficiency, quality, and consistency. However, when losses occur determining causation can become significantly more challenging. Interconnected equipment, software sensors, and autonomous material handling systems may each contribute to an event, creating multiple points of failure and complicating root cause investigations, liability determinations, and claims resolution.



## The Duty of Care Is Also Evolving

AI is increasingly embedded across the manufacturing ecosystem and influencing multiple interconnected processes, which amplifies its value and exposure. This creates a bit of a Catch-22. Failure to act on AI-generated insights, or explain why they were ignored, is being treated as a potential control failure. The standard is shifting from reactive problem-solving to credible prevention and oversight. This shift doesn't remove people from responsibility; it raises the bar on human accountability.

AI systems used for early detection, such as defect recognition, anomaly alerts, and process drift, **raising expectations about what a company knew and when**. Increasingly, regulators and courts look at whether:

- + An alert was generated
- + The alert was reviewed
- + A decision was overridden
- + That decision was documented

During production, manufacturers are using AI to automate processes including temperature, resin mix, and cycle times but input errors that lead to output issues can be framed as a manufacturing or design defect. At the same time, if AI-powered inspections systems miss instances like cracks, voids, or warping, the manufacturer could be liable for over-reliance on automation.

AI is being used to reduce maintenance downtime but failures in its predictive modeling that can create a cascade of consequences from maintenance and production scheduling to delivery. And, if AI is embedded in ERP or MES platforms and inputs flawed recommendations or bad data, manufacturers may find isolating affected material difficult and potentially widen the scope of a recall.

If AI changes how a product is made or predicts acceptable performance, the manufacturer may need to revisit product warnings, technical data sheets, installation guidance, and customer specifications. Product liability theories around AI are increasingly being framed through defect, warnings, and foreseeability.

Plastics manufacturers serving automotive, medical device, aerospace, electronics, food packaging, or industrial customers may face indemnity demands if AI-driven production errors cause downstream failures, recalls, line shutdowns, warranty claims, or regulatory issues resulting in contractual liability with OEM customers.

Demonstrating human oversight with clear escalation channels, documented overrides, model governance, and **active monitoring is moving from best practice to a baseline expectation in advanced manufacturing environments**.



## The AI Insurance Gap

Most commercial manufacturing insurance is written for human-driven operations. As AI changes risks, insurers are responding, mainly by narrowing coverage.

AI-related lawsuits in the U.S. have grown steadily since 2020, with filing rates accelerating. At the same time, policy language is tightening. Industry groups and major carriers have introduced AI-related exclusions, including specific language around generative and algorithmic decision-making.

**For plastics manufacturers, this creates real exposure across several lines of coverage:**

### GENERAL LIABILITY / PRODUCT LIABILITY

AI-driven decisions in quality control make algorithms integral to the production process. When a defective part reaches a customer or downstream manufacturer, policies written for human-driven operations may not respond as expected.

### PROFESSIONAL LIABILITY (A BLEND OF TECH AND MANUFACTURER'S E&O)

As software and automation become inseparable from production, failures in code, data, or system logic can cause physical loss. In plastics facilities, a software error in a closed-loop control system can result in off-spec output, equipment damage, or production line shutdowns. Wrongful acts or technology-related performance failures are gaps that general liability and cyber policies frequently exclude.

If the plastics manufacturer provides design assistance, material selection, mold-flow analysis, prototyping, testing, or engineering recommendations using AI, the exposure shifts beyond products liability into professional liability/manufacturers E&O.

### CYBER

The interconnected systems of smart plastics facilities mean a single vulnerability can spread across the entire operation. Data poisoning can cause defective output, missed defects, or line shutdowns. A cyber incident in an AI-enabled plant can trigger multiple policy claims simultaneously.

### PRODUCT RECALL AND CONTAMINATION

AI detection and monitoring systems lower the threshold for what counts as known issues. When alerts, trend data, or anomaly logs exist, claim severity often increases and defensibility decreases. For plastics manufacturers, the downstream consequences of a defective part can be significant.

When **considering policy coverages for AI uses in plastics manufacturing**, underwriters are drilling down on questions, such as:

- + Who owns and controls training data?
- + How often are models reviewed or audited?
- + What happens when systems disagree with human decisions?

Manufacturers struggling to provide clear answers are facing stricter conditions from insurers, including tighter terms, higher retentions, and reduced capacity.<sup>1</sup>



## A Final Thought

Automation has increased exposure in plastics manufacturing. What matters now is ensuring contracts, controls, and insurance keep pace with this evolving production environment. For plastics manufacturers, aligning a risk strategy with an automation strategy is no longer optional, it is part of running a defensible operation. For more information on how your risk portfolio is in line with your automation strategy, contact your broker or risk advisor.

## Where to Start: A Practical Checklist

Advanced manufacturing companies do not need to solve everything at once. But they do need a clear starting point. The following checklist focuses on actions that matter most from a liability and insurance perspective.

### GOVERNANCE AND OVERSIGHT

- Document when and how humans can override automated systems.
- Define escalation protocols for AI-generated alerts.
- Require a written rationale for overrides and ignored alarms.
- Maintain version control and change logs for models in production.

### VENDOR AND CONTRACT RISK

- Review AI, software, and automation contracts for liability caps.
- Identify risk transfer gaps between vendors and the manufacturer.
- Confirm indemnification language aligns with the real operational risk.
- Understand who bears responsibility for model failure or data issues.

### INSURANCE COVERAGE ALIGNMENT

- Map AI use cases against existing policies, not job titles.
- Identify where GL, cyber, and recall policies may stop responding.
- Evaluate standalone Tech E&O or AI-specific endorsements.
- Confirm cyber coverage addresses data integrity, not just breaches

### INCIDENT RESPONSE READINESS

- Integrate AI system data into recall and incident response plans.
- Ensure cyber, operations, quality, and legal teams are aligned.
- Test how alerts, logs, and analytics will be handled after an event.

### UNDERWRITER READINESS

- Prepare clear explanations of AI governance for renewal meetings.
- Show how models are monitored, reviewed, and corrected.
- Demonstrate that automation decisions are understood — not blind.

### SOURCES

1. Duff-Brown, Beth. (2026, January 6). *AI-driven insurance decisions raise concerns about human oversight*. Stanford Report. <https://news.stanford.edu/stories/2026/01/ai-algorithms-health-insurance-care-risks-research>

This material is for general information only and should not be considered as a substitute for legal, medical, tax and/or actuarial advice. Contact the appropriate professional counsel for such matters. These materials are not exhaustive and are subject to possible changes in applicable laws, rules, and regulations and their interpretations.