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Chinaâ??s generic fungicide push runs into new intellectual property challenge

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Patents from East China University of Science and Technology and Hailir highlight China's efforts to develop alternative polymorphs and stabilisation technologies as generic manufacturers confront secondary intellectual property restrictions



China's agrochemical industry is exploring new intellectual property pathways for fluxapyroxad, a widely used fungicide, as domestic manufacturers seek to enter the market following the expiry of the compound patent. Research teams at East China University of Science and Technology and Hailir Pesticides and Chemicals Group have reported developments in alternative crystal forms that could help manufacturers address patent-related constraints surrounding the active ingredient.

Fluxapyroxad, developed by BASF, belongs to the succinate dehydrogenase inhibitor (SDHI) class of fungicides. It is used to control a range of fungal diseases, including powdery mildew, rust, sheath blight and leaf spot, across crops such as wheat, fruits and vegetables. The expiry of the core compound patent has opened opportunities for generic manufacturers in China, triggering increased investment in technical-grade production and formulation development. Industry activity has also intensified, with registrations expanding and planned production capacities reaching the thousand-tonne scale.

However, the expiration of the compound patent has not eliminated all intellectual property constraints. Peripheral patents covering crystal structures, manufacturing processes, intermediates and formulations continue to influence market entry strategies. Among these is BASF's patent covering fluxapyroxad crystal form B (CN101743225B), which remains in force, according to the industry report.

Crystal Form Patents Create a Second Intellectual Property Barrier

Fluxapyroxad is known to exist in multiple crystalline forms, including forms A and B. According to the report, form B is thermodynamically stable and covered by the originator's crystal-form patent. Form A, meanwhile, is a metastable structure

that falls outside the claims of the cited patent but can readily transform into form B. This instability presents a significant technical challenge for manufacturers seeking to develop commercially viable alternatives without infringing existing intellectual property rights.

Consequently, the ability to identify alternative crystal structures and control polymorphic transformations has emerged as an important area of research for China's generic agrochemical manufacturers.

Chinese Research Teams Explore Alternative Crystal Structures

East China University of Science and Technology secured a patent titled A Polymorph of Fluxapyroxad and Its Preparation Method and Application (CN118221588B), which was granted on January 2, 2026.

Hailir Pesticides and Chemicals Group has separately identified a new crystal form, designated form X, alongside a method intended to inhibit crystal transformation in metastable forms. The company has completed patent filings covering the associated technologies, according to the report.

These developments reflect efforts to establish alternative technical pathways for fluxapyroxad production while navigating the originator's existing patent portfolio.

Peripheral Patents Reshape Generic Agrochemical Competition

The fluxapyroxad developments highlight a broader shift in the global crop protection industry. As patents covering established active ingredients expire, intellectual property protection increasingly extends to secondary innovations involving crystal forms, synthesis routes, intermediates and formulation technologies.

For generic manufacturers, competing in this environment requires more than developing an alternative production process. Investment in research, process optimisation and independent intellectual property has become increasingly important to establishing commercially viable and legally compliant manufacturing operations.

Chinese agrochemical companies are therefore expanding research into newer active ingredients and alternative production technologies, seeking to strengthen their competitive positions in both domestic and international markets. The emerging work on fluxapyroxad illustrates how crystal engineering and polymorph research are becoming strategically important in the next phase of generic crop protection development. However, the commercial significance of these technologies will ultimately depend on their technical performance, manufacturing scalability and the outcome of applicable patent assessments.