in focus

Put more emphasis on inert ingredients to streamline pesticide registration

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Inert ingredients are often under prioritized in pesticide registration strategies, with actives given more time and attention early in the process. However, both inert and active ingredients must be approved by the United States Environmental Protection Agency (EPA) for inclusion in pesticide products. A lack of focus on inert ingredients can hinder, delay, or even prevent registration.

In this whitepaper our Head of Federal Affairs, Abigail Wacek, explains how to identify inert ingredients and ascertain their approval status. She also outlines key aspects of the inert petition process, including relevant updates from the Pesticide Registration Improvement Act of 2022 (PRIA 5).

US regulations for pesticide products cover inert as well as active ingredients. As EPA explains, "inert does not mean non-toxic" and under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), all pesticide ingredients require approval. There is no de minimis value enabling exemption.

While active ingredients perform the critical pesticidal function, inert ingredients (such as emulsifiers, stabilizers, surfactants, diluents, colorants, and fragrances) also play an important role. When planning the regulatory strategy, it makes sense to consider active and inert ingredients side by side. This helps to streamline preparations for registration of new or amended pesticide products, reducing the risk of last-minute regulatory challenges.

Inert ingredient regulations

The regulatory status of inert ingredients should be determined at the earliest possible stage. EPA classifications for them include: 'food and nonfood use', 'nonfood use only', and 'fragrance'. Those on the fragrance ingredients list are considered nonfood use only and are subject to additional limitations and requirements.

Approval of an inert ingredient by another US federal Agency such as the Food and Drug Administration (FDA) may aid EPA assessment. However, it does not equate to EPA approval, and each pesticide ingredient must be individually assessed by EPA.

Nevertheless, it's not always necessary to actively petition for an inert ingredient's approval. A useful resource to ascertain current regulatory status is EPA's online database InertFinder. With this search tool, users can input a chemical name or Chemical Abstract Service (CAS) number to discover whether an ingredient is already approved for food, nonfood, or fragrance use. For food use ingredients, use or rate limitations may be included with the results.

Some inert ingredients are so widely used that they are considered a commodity, and pesticide registrants don't need to identify their supplier. EPA's online list of Commodity Inert Ingredients can be consulted to see if this is the case. It is however worth remembering that EPA periodically updates the list; in September 2022 16 new inert ingredients were added and the removal of 12 chemicals identified as per- and polyfluoroalkyl substances (PFASs) was proposed.

Where possible, the simplest option for pesticide companies is to formulate using inert ingredients that are already EPA-approved. If a pesticide formulation contains an inert that hasn't been approved for the intended use category, it's usually advisable to reformulate. However, sometimes there are no viable alternatives. In this situation, the applicant will need to petition the EPA for approval.

Food use inert ingredients

There are six specific categories for food use inert ingredients listed in title 40 of the Code of Federal Registration:

- § 180.910 Inert ingredients used pre- and post-harvest; exemptions from the requirement of a tolerance
- § 180.920 Inert ingredients used pre-harvest; exemptions from the requirement of a tolerance
- § 180.930 Inert ingredients applied to animals; exemptions from the requirement of a tolerance
- § 180.940 Tolerance exemptions for active and inert ingredients for use in antimicrobial formulations (food-contact surface sanitizing solutions)
- § 180.950 Tolerance exemptions for minimal risk active and inert ingredients
- § 180.960 Polymers; exemptions from the requirement of a tolerance

Under the Food Quality Protection Act (FQPA) of 1996, EPA must determine limitations on the amount of active and inert ingredients which remain in or on food after application of a product. The Agency establishes tolerances, the amount of chemical residue that may remain, or exemptions from tolerances, for all ingredients applied to food. Petitions for food contact inert ingredients must include a Notice of Filing summarizing the request for a tolerance or exemption from a tolerance, the proposed use, and a summary of all the supporting data.

PRIA 5 and inert petitioning

EPA's CITAB must be petitioned for the approval of any new inert ingredient, or for category changes, for example, from non-food to food use. This involves providing data, information, and arguments in support of the submission. It's also necessary to justify why the submitted data is appropriate and sufficient for EPA to make a safety finding. The list of data which EPA may require is extensive and includes information on the physical and chemical properties of the ingredient as well as data on toxicity, human exposure, environmental fate and effects, and ecotoxicity.

Under PRIA 5, which became effective on 27 February 2023, there are 18 fee categories for the regulation of an inert petition. These range from $2,374 for the approval of a substantially similar nonfood use inert ingredient, to $856,631 for approval of a new food use safener with tolerance or exemption from tolerance [inert]. Decision review times range from four to 26 months depending on the category. A description of each category as well as the associated timeline and fee is available on EPA's website. Small business waivers of up to 75% are available for registrants who qualify.

When an inert ingredient has been reviewed and approved, a company can apply to include it as part of a new or amended pesticide formulation. The name, CAS#, supplier, and percent by weight in the formulation must be provided. If the inert ingredient is part of a mixture, the registrant or inert supplier must also provide the full composition of that trade name inert mixture.

EPA will not review a pesticide application with unapproved inert ingredients, but pesticide applications can be submitted concurrently with inert petitions. In this situation, the review date will be extended to ensure the inert is assessed first.

Trade name ingredients

EPA began publishing a List of Trade Name Inert Ingredients in 2014. This voluntary database provides trade name, approved uses, and manufacturer's name (optionally), of inert ingredient formulations. The database confirms the approval status of an inert ingredient or inert mixture without disclosing its composition, protecting Confidential Business Information. Manufacturers of inert ingredients or inert mixtures must submit the full compositional information and trade name of the ingredient or mixture to EPA for inclusion on the database.

Three ways to ease the inert petitioning process

Inert petitioning can be arduous, but these three approaches help reduce the burden:

1. Develop a well-informed strategy

The inert petition process may be lengthy and expensive. However, a comprehensive understanding of what's required, potential challenges, and alternative ways to satisfy data requirements can shorten preparation time and may reduce costs. EPA provides many resources for applicants including an FAQ page and general guidance documents. Effective planning and strategic thinking can ease and accelerate the path to successful approval of a new or amended inert ingredient.

2. Look beyond data generation

Applicants don't necessarily need to generate all the required data independently. Public literature citation, bridging arguments, and data waiver rationales are all viable options if they offer a scientifically sound basis for the Agency to make its determination.

Referencing an ingredient's approval status in another jurisdiction may also be beneficial. For example, a proposed food contact inert ingredient might be approved by the FDA for use in over-the-counter medicine. The FDA may have already evaluated the ingredient and made a safety determination that EPA can consider. Similarly, if the ingredient is approved for pesticide formulations in Europe, EPA may consult the associated scientific evaluations. While approval by another authority does not guarantee EPA approval, a wide body of existing knowledge may reduce the need for new data.

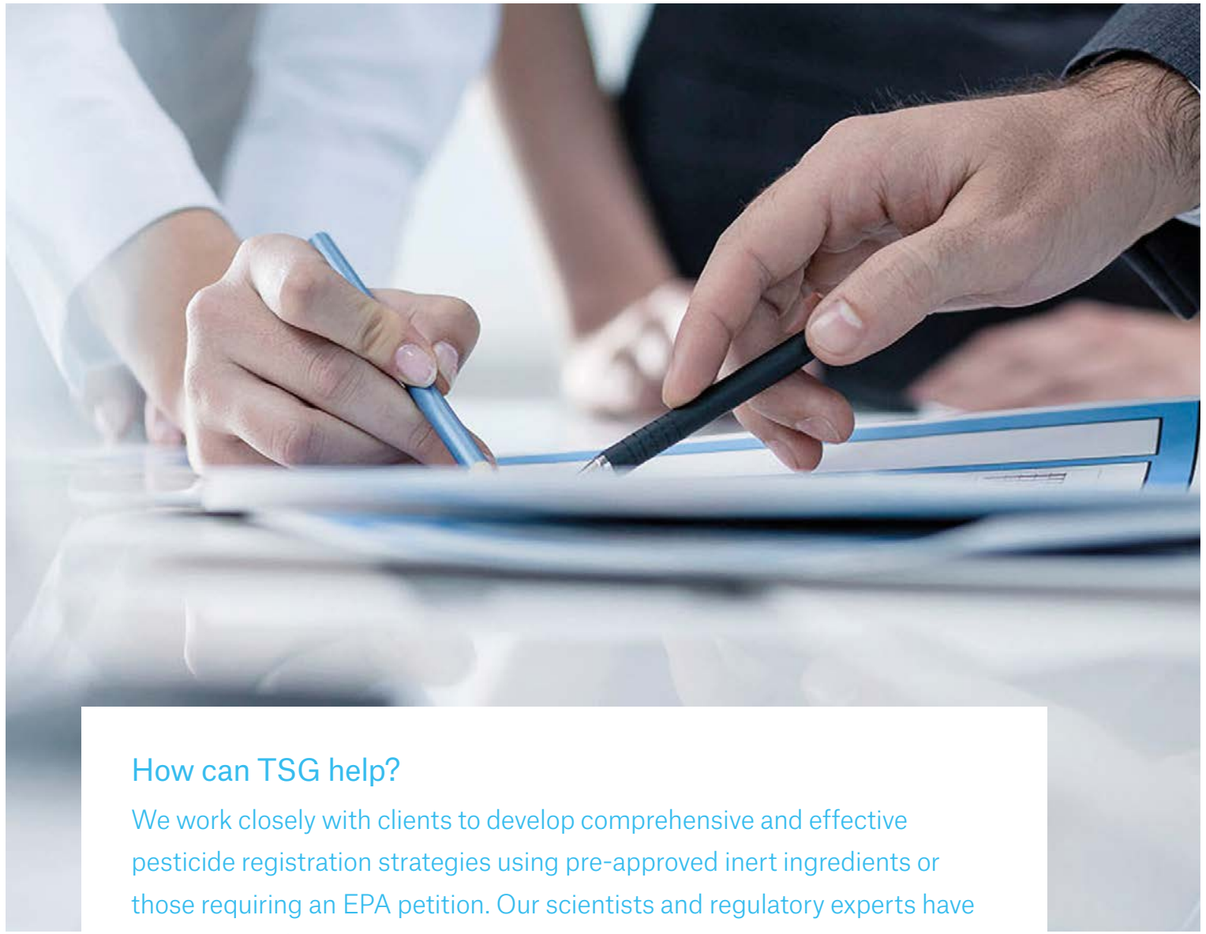
3. Engage with CITAB

EPA recommends that applicants request a pre-submission meeting with CITAB. This is an opportunity to discuss the proposed new or amended inert ingredient and uncover any specific concerns EPA may have. Applicants can also discuss chemically similar ingredients which the Agency may have encountered previously or gauge willingness to consider a data wavier rationale. This is an excellent way to ensure the inert ingredient application is properly positioned, reducing or hopefully preventing issues during the review process.

Final thoughts

Focusing on inert ingredients from the outset of pesticide product development facilitates a more strategic regulatory approach that can save time and money. In many cases, it is possible to formulate using inert ingredients that are already approved, so companies can avoid having to petition EPA ahead of pesticide registration. What's more, at the time of writing, 420 ingredients are included on EPA's Commodity Inert Ingredients list. This removes a layer of administration since supplier details don't have to be specified on pesticide registration.

When an inert petition is required, it's important to approach the process with an open mind. Take time to fully understand and interpret EPA requirements as it may be possible to minimize the amount of new data that needs to be generated. Working with a third party can be beneficial too, for instance facilitating collaboration between the pesticide registrant and the inert ingredient supplier to satisfy EPA's requirement for full disclosure of composition in a confidential manner. Submitting an inert petition concurrently with pesticide registration is another way to streamline the process to get new or amended pesticide formulations to market sooner.



How can TSG help?

We work closely with clients to develop comprehensive and effective pesticide registration strategies using pre-approved inert ingredients or those requiring an EPA petition. Our scientists and regulatory experts have a great deal of experience helping companies prepare and submit inert petitions, including liaison with inert ingredient suppliers. We also work directly with inert ingredient suppliers who want to support their customers but are unfamiliar with EPA processes and want to protect commercially sensitive information.

TSG consultants were involved in the PRIA Coalition and PRIA fee category negotiations, so we are very familiar with the requirements for a successful inert petition.

Want to learn more?
Contact us at
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About the author
Abigail T D Wacek, Head of Federal Affairs

Abigail specializes in pesticide compliance, with an emphasis on antimicrobials. She has particular expertise with inert ingredient petitions, treated articles, and products that integrate nanoscale materials, especially silver. Abigail combines her background in environmental studies with her regulatory knowledge to submit federal registration packages, prepare inert ingredient petitions, develop label claims and coordinate product testing. Before joining TSG, Abigail worked as an environmental protection specialist at the US Environmental Protection Agency (EPA) where she reviewed pesticide applications for compliance with the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and the Pesticide Registration Improvement Act (PRIA). Abigail earned a BA in Environmental Studies from Gettysburg College.

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