

Update on the Use of Biocides in Metalworking Applications

Europe

The July 2007 deadline to submit substance dossiers to the Rapporteur Member States pursuant to the Biocidal Products Directive (BPD) has come and gone. Numerous substance suppliers submitted dossiers; an unknown number of suppliers that are commonly called "free riders" did not.

To give you some sense of the extent of the undertaking, the official list of applicants to the Review Programme of existing active substances used in biocidal products is 28 pages long (see http://ec.europa.eu/environment/biocides/pdf/list_participants_applicants.pdf).

Applicants' dossiers - all the information known about the substance, including safety data sheets, study summaries, study reports and toxicity and risk assessments performed by qualified labs - typically filled a small truck for each substance.

And applicants' costs to produce each dossier were staggering - at a minimum 1 million to 1.5 million euros. By submitting dossiers, applicants demonstrated their commitment to long-term supply as well as extensive knowledge about their substances. Free riders demonstrated no such commitment and gained no such knowledge.

So what are the next steps in the BPD registration process for biocides used in metalworking fluids and related applications. Here's the entire process and timetable.



BPD Process and Approximate Timetable

The substance supplier submits a dossier of information about the substance to the Rapporteur Member State (RMS) assigned for that type of substance - 31 July 2007

The RMS checks the dossier for completeness (to make sure it contains all the required data) - was finalized by 31 January 2008

The RMS evaluates the dossier in form and content and submits a report on the substance dossier to the European Commission (EC) - within the next 12 months (in the best case)

Member States review and comment on the report, the EC reviews the substance and decides whether or not to list the substance on Annex I - 31 January 2010 (in the best case)

The EC places the accepted substance on Annex I - by sometime in 2011

Only substances on Annex I may be supplied anywhere in the EU for use in biocidal products; unfortunately the free rider issue is not yet clearly regulated.

In order to market biocidal products, including system cleaners, containing substances listed on Annex I, suppliers must apply for registration in the individual Member States where the products are to be marketed. - within 2 years of the substance being placed on Annex I

Member States evaluate applications they receive for registration of biocidal products containing substances listed on Annex I - within 2 years of application

Member States are expected to accept registrations by other Member States through mutual recognition.

As you can see, the BPD process is long, arduous and expensive; however, it is an important step in protecting people, animals and the environment. Industry support of the BPD registrants is vitally important; they are the ones who can be counted on to offer trend-setting solutions to future needs in the form of substances and products and to reduce the risks and hazards for people, animals and the environment.

United States

The U.S. EPA, under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), regulates biocides in the United States.



Photographs: Courtesy of Lubrizol

One of the EPA's current activities is the review of all pesticides registered prior to 1 November 1984, to determine if their active ingredients make them eligible for reregistration. The goal is to make sure that they meet current scientific and regulatory standards. The pesticide's human health and ecological effects are considered, and actions are taken to reduce risks that are a concern.

The EPA is responsible for the development and issuance of Reregistration Eligibility Decision Documents (REDs) for all chemicals with mainly antimicrobial uses. The RED document formally presents the agency's evaluation of the data supporting the reregistration of a pesticide. It includes conclusions about which uses are eligible for reregistration under specific conditions and requirements, etc.

Formaldehyde and certain formaldehyde releasers such as HHT (triazine) are on the docket for RED review in 2008. Applicants for reregistration of these pesticides must provide supporting documentation that includes a complete scientific analysis showing that they can be used without causing unreasonable adverse effects to human health or the environment.

The EPA's online Antimicrobial Reregistration Status page (see www.epa.gov/pesticides/reregistration/status_antimicrobial.htm) contains the list of the antimicrobial REDs, their status, and completed documents and available fact sheets. To date, there are no indications that formaldehyde and related formaldehyde releasers will not be viable substances for use in metalworking and related fluids in the future.

Glossary

Annex I – The main list of active substances assessed as having hazards that can be sufficiently controlled to allow their effective use in biocidal products.

Biocidal Products Directive (BDP) – The European Parliament and Council adopted Directive 98/8/EC in 1998. It aims to harmonise the European market for biocidal products and their active substances as well as provide a high level of protection to humans, animals and the environment. It defines biocidal products and creates a two-step procedure for their evaluation. The first step is entry of active substances onto Annex I; the second step is registration in individual Member States of the products using the active substances.

Biocidal product – Broadly, any chemical that can impact the generation or life of a microorganism. Specifically, any substance intended to destroy, deter, render harmless, prevent the action of, or otherwise exert a controlling effect on any harmful organism by chemical or biological means. It can be a mixture of more than one biocidal substance. There are 23 classes categorized under disinfectants, general biocidal products, preservatives, pest control, and other biocidal products.

Dossier – A package of information that contains all the data the European Commission and Member States require in order to evaluate a biocidal product for inclusion on Annex I or to authorize its registration.

Free rider - A supplier that copies substances that are being registered by other suppliers. The free rider performs no testing and incurs no expenses.

Member States - The 27 member countries in the European Union.

Rapporteur Member State – A European Union Member State responsible for evaluating one or more dossiers.

Substance - A chemical element and its compounds including any additive necessary to preserve its stability. One or more substances may be used to formulate a product. A supplier knows its substance well; by submitting a dossier, a supplier signals its commitment to the substance and also its product stewardship.

System cleaners - Biocide-containing formulations that are used to clean central systems and kill microorganisms.

Michael Scholz,
Global Biocide Manager
The Lubrizol Corporation

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Halocarbon: Advancements in Fluorinated Lubricants

- Company continues to deliver safe and versatile non-flammable, non-corrosive, high Temperature, hydrocarbon-free and low toxicity inert lubricants to the industrial marketplace
- Lubricants Ideal for Metal Drawing and Forming for Molybdenum, Tungsten, Tantalum, Zirconium and Niobium

Halocarbon lubricants are ideal for use in the manufacturing and application of almost all aggressive chemicals:

- Oxygen service
- Sulphuric acid and sulphur trioxide service
- Chlorine service
- Hydrogen peroxide service
- Sodium or potassium chlorate pumps
- Fill fluid for mechanical seals
- Water treatment systems
- Inert process solvent

Halocarbon oils also dramatically increase tool life and eliminate the use of chlorinated solvents as cutting oil in machining molybdenum and tungsten. The oils also have low compressibility compared to other inert lubricants, making them ideal for non-flammable hydraulic fluid applications.



"Halocarbon first commercialised polychlorotrifluoroethylene-based lubricants more than five decades ago," said Halocarbon CEO Peter Murin. "Today, our wide range of inert oils, greases and waxes help industries worldwide safely handle aggressive chemicals.

They're also used in many other unique applications that we never thought of when we commercialised the products. Importantly, our oils can be recycled and reclaimed and we work closely with our customers and recycling vendors to make this happen."



Halocarbon's lubricants are approved by NASA, BAM and the world's leading industrial gas manufacturers.



FLUORINE 101

What do many of the high-technology products that we almost take for granted like chemically stable polymers, pharmaceuticals and agrochemicals with enhanced activity, next-generation photo resists and long-life elastomers have in common? In many cases, you'll find fluorine in them. Why did this once-exotic, highly reactive element become so important?

There are many reasons why organic compounds are fluorinated, most of which may be understood in terms of fluorine's unique atomic properties. Fluorine is the most electronegative of all elements and it has one of the highest ionization potentials. The low polarizability and relatively small size of the fluorine atom also affect electronic and bonding properties.

Many physical and spectroscopic properties are affected by these factors, including boiling point, dielectric constant, surface tension, density, viscosity, critical temperature and UV absorption. Fluorination can dramatically alter the solvent properties of an organic molecule.

The *chlorofluoropolymers* are used in chemical processing equipment such as gaskets and valve seats. Due to the low gas permeability of films made from this material, it is used in packaging air- and moisture-sensitive materials like drugs. The lower molecular weight polymers are widely used for lubrication in aggressive environments where the use of hydrocarbon lubricants is dangerous. They are available as oils, greases and waxes. The chemical and cryogenic gas industries use a great deal of these lubricants in a variety of processing equipment. Modern aircraft can use the oils as nonflammable hydraulic fluids.

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ASTM Approves New Biodiesel Blend Specs

The biodiesel industry was celebrating following the final vote by the ASTM International D02 Main Committee to approve a trio of long-awaited ASTM specifications for biodiesel blends. After more than five years of extensive research and subsequent balloting by the ASTM fuel experts in the blended fuel balloting process, ASTM has finally voted to approve three key sets of biodiesel specifications that should significantly bolster automaker support and consumer demand for biodiesel: -

- Changes to the existing B100 biodiesel blend stock specification (ASTM D6751)
- Finished specifications to include up to 5% biodiesel (B5) in the conventional petrodiesel specification (ASTM D975)
- A new specification for blends of between 6 percent biodiesel (B6) to 20 percent biodiesel (B20) for on and off road diesel.

Automakers and engine manufacturers have been requesting a finished blend specification for B20 biodiesel blends for several years, with some citing the need for that spec as the single greatest hurdle preventing their full-scale acceptance of B20 use in their diesel vehicles.

Steve Howell, Chairman of the ASTM Biodiesel Task Force, said, "The new ASTM specifications for B6-B20 blends will aid engine manufacturers in their engine design and testing processes to optimize the performance of vehicles running on biodiesel. The new specifications will also help ensure that only the highest quality biodiesel blends are made available to consumers at the retail pump."

Automaker Chrysler LLC was instrumental in working with the ASTM task force toward B20 specification development and approval, having supported fleet use of B20 in its Dodge Ram diesel pickups since January 2006.

Chrysler Safety and Regulatory spokesman Max Gates stated, "This action by the ASTM committee is a milestone in our nation's effort to expand the role of renewable fuels, including biodiesel, in addressing our energy, environmental and economic challenges. Chrysler LLC is committed to working with our partners in the transportation industry to build on this action and make biodiesel an alternative available to all of our customers."

John Gaydash, Director of Marketing for General Motors Fleet and Commercial Operations, said, "The new ASTM spec for B6 - B20 is a major building block in GM's efforts to elevate biodiesel as part of our overall energy diversity strategy. We are eager to work with the National Biodiesel Board on efforts to

continue to ensure biodiesel fuel quality, as well as to increase our support for biodiesel use in our diesel vehicle lineup." Currently, GM accepts the use of B5 in all of its diesel vehicles, and offers B20 use as a Special Equipment Option (SEO). The SEO is available to government fleets on specific configurations of the Chevy Silverado and GMC Sierra Heavy Duty Pickups, as well as the GMC Savanna and Chevy Express Commercial Cutaway Vans.

The final passage of the new ASTM specifications for biodiesel is welcome news for fleets as well. "We have been running our entire fleet on B20 biodiesel blends for the past seven years in order to meet state requirements for alternative fuel use, and because it is the right thing to do to help clean up our environment," said James Morwood, Fleet Services Manager for the Las Vegas Valley Water District. "In some cases that has meant exceeding the biodiesel blend level recommended by some of the automakers represented in our fleet. It is reassuring to know that those automakers now have the ASTM specifications they have said they need in order for them to fully support B20 use."

The approval of ASTM specifications for inclusion of up to 5% biodiesel (B5) in the regular diesel fuel pool also means that biodiesel could soon become more readily available at retail fueling stations nationwide.

The ASTM International Main Committee also approved a fourth set of specifications for inclusion of B5 biodiesel in heating oil. Marketed as Bioheat, biodiesel is gaining popularity as a home heating oil, particularly in the Northeast United States.

Biodiesel is a domestically produced, renewable alternative to diesel fuel and can be made from plant oils, animal fats, recycled cooking oils or new sources such as algae. Biodiesel must be properly processed to meet the approved ASTM specifications regardless of the feedstock used to produce it. Biodiesel blends up to B20 meeting ASTM specifications can be used in any diesel engine without modifications, and nearly all major automakers and engine manufacturers in the U.S. currently accept the use of at least B5, with some such as Caterpillar, Cummins, John Deere and New Holland already accepting blends of B20 or higher. Several more companies are expected to raise their approvals to B20 now that the final ASTM specifications for B6-B20 blends have been approved.

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