

Media Release

Clariant's Exolit® OP 560 confirmed as safer flame retardant for PU foam

- **United States Environmental Protection Agency concludes assessments of flame retardants**
- **Non-halogenated Exolit OP 560 identified as safer alternative to pentaBDE for PUR foams**
- **Supports upholstery sector in switch to renewable materials and enhanced environmental compatibility**

Muttenz, October 3, 2014 – Clariant, a world leader in specialty chemicals, confirms good news for the upholstery industry and other sectors looking for safer, environmentally more compatible flame retardants that meet internationally accepted flammability standards for flexible polyurethane foam. In its draft Alternatives Assessment report¹ on flame retardants in flexible foam released in June², the U.S. Environmental Protection Agency (EPA) identified Clariant's oligomeric phosphonate polyol (OPP) flame retardant - marketed under the trade name Exolit® OP 560 – as a safer alternative to pentabromo diphenylether (pentaBDE), traditionally used for giving fire protection to foam.

The report is part of the EPA's Design for the Environment program, which helps industries choose safer chemicals, and offers a basis for future decision-making by providing a detailed comparison of the potential public health and environmental impacts of chemical alternatives.

Exolit OP 560 is a reactive flame retardant that eliminates unwanted emissions since it becomes chemically bonded within the polymeric polyurethane foam structure. As a result, the Exolit OP 560 cannot leave the foam during use. Exolit OP is also halogen-free, and has a more favorable toxicological and environmental profile. In particular, it cannot bioaccumulate in humans and other organisms since it is "locked" into the foam. Further benefits for PU applications include excellent ageing stability, as well as low smoke density and smoke gas corrosivity in case of a fire. The phosphonate's high effectiveness and good compatibility with natural polymers allow it to be used at low dosages in the foam matrix, which also adds to the foam's excellent sustainability profile.

¹ US-EPA foam flame retardant draft update report - <http://www.epa.gov/dfe/pubs/projects/flameret/about.htm>

² US-EPA Press release - <http://yosemite.epa.gov/opa/admpress.nsf/0/F943A4C163A5B8A785257CF500698492>

Natural Foams Technology (formerly Green Urethanes Ltd), the provider of green solutions to the global PU industry, has confirmed that manufacturers can use Exolit OP 560 with its natural oil polyol (NOP) foams to develop low-emission-flexible foams that meet internationally accepted flammability standards³ such as TB117-1975, California's open flame flammability test for upholstered furniture, and the updated Cal TB 117-2013, which comes into force in January 2015. With high bio-renewable content, the foams have become the first to be accepted into the USDA's BioPreferred program, a U.S. federal program to encourage industry to switch to more sustainable materials.

NCFI Polyurethanes, a North Carolina-based manufacturer, has been utilizing the NOP technology in their BioLuxMax line for several years. After running extensive trials with Exolit OP 560, they plan to introduce a commercial product in the 4th quarter 2014. "This is a natural evolution for our BioLuxMax initiative," says Chris Bradley, VP of Consumer Products for NCFI. "This project has always been about maximizing the benefits we can offer our customers. We feel a foam with 33% certified bio-renewable content that passes the open flame standard of CA-117-1975 and can be labeled under the new California law as flame retardant free, is a huge step in that direction."

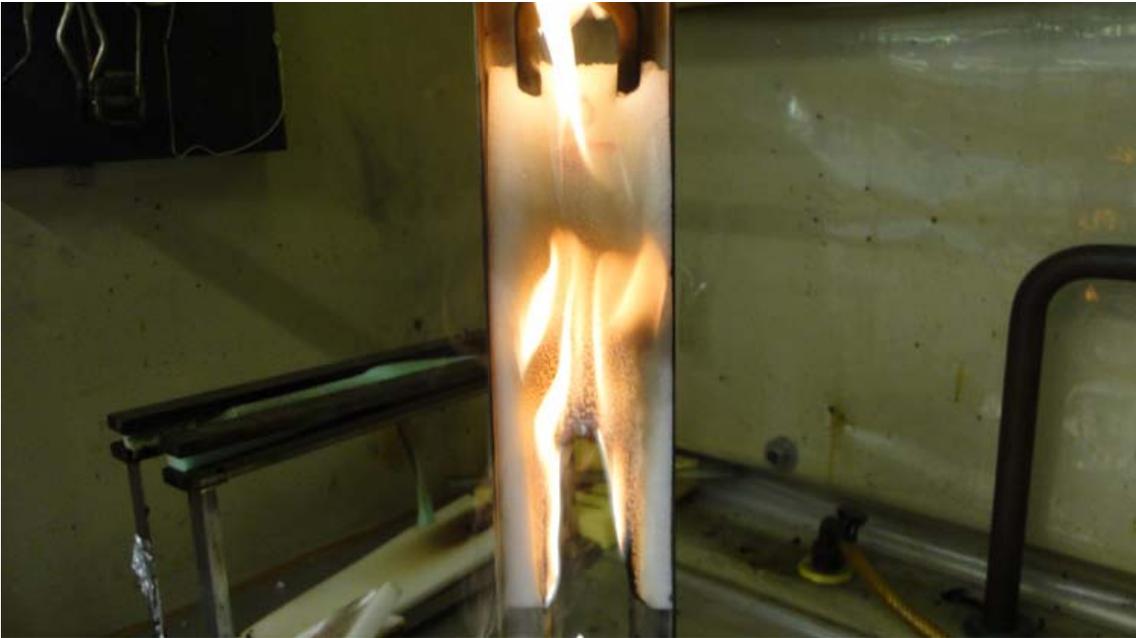
Additional testing by Clariant and Natural Foams reinforces the EPA's replacement assessment of the Exolit material. Results from these and other independent tests show good flame retardant performance as well as substantial smoke reduction from these foams. A recent study⁴ by Dr. Heather Stapleton at Duke University's Nicholas School for the Environment in North Carolina also concluded that Exolit OP 560 is not released from the polyurethane foam.

"Exolit OP 560 is not only halogen-free but becomes an integral part of the PU foam, creating possibilities to produce flexible foams with locked-in fire protection without the environmental and health concerns of traditional flame retardants," comments Adrian Beard, Head of Marketing Flame Retardants, Clariant. "The US-EPA report is a step forward in easing the identification of safer alternatives by PU foam producers and end-users."

Clariant is looking to expand capacity to meet increasing demand in the move toward more environmentally friendly and sustainable PU foams.

³ Jeff Rowlands: *Natural Foams Technology to produce safer and more environmentally acceptable flexible PU foams*. PU MAGAZINE – VOL. 11, NO. 4 – Aug./Sep. 2014 -- <http://naturalfoams.com/wp-content/uploads/2014/09/Special-Reprint-Natural-Foams-Technology-PU-Magazine-August-2014.pdf>

⁴ E M Cooper, G L Kroeger, K Davis, P L Ferguson, H M Stapleton: Duke Superfund Center Foam Project: Flame Retardant Testing for the General Public. Poster presented at BFR 2014 conference, Indianapolis, IN, USA -- http://naturalfoams.com/wp-content/uploads/2014/09/BFR_2014_Final1.pdf



Clariant's Exolit® OP 560 confirmed as safer flame retardant for PU foam. (Photos: Natural Foams Technology)



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(Photo: Clariant)

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Clariant is a globally leading specialty chemicals company, based in Muttenz near Basel/Switzerland. On December 31, 2013 the company employed a total workforce of 18,099. In the financial year 2013, Clariant recorded sales of CHF 6.076 billion for its continuing businesses. The company reports in four business areas: Care Chemicals, Catalysis & Energy, Natural Resources, and Plastics & Coatings. Clariant's corporate strategy is based on five pillars: increase profitability, reposition portfolio, add value with sustainability, foster innovation and R&D, and intensify growth.