

Cittadella, 30.10.2019

SUBJECT: PHTHALATES in our thermoplastic compounds related to REACH prohibition. Authorization of Dibutyl phthalate (DBP), Diisobutyl phthalate (DIBP) and Bis(2-ethylhexyl) phthalate (DEHP) from February 2015.

The formulation of our thermoplastic compounds

ISOTER – DAFNELAC (ABS compounds)

ISONYL – DAFNEMID - AXONYL (PA compounds)

ISORYL (PPO compounds)

ISOTENE (PE compounds)

ISODUR - DAFNELOY (PET and PBT compounds)

ISOFORM - DAFNELAN (POM compounds)

ISOBLEND – DAFNEBLEND (PC/ABS alloys)

ISOCLEAR - DAFNELOY (PC compounds)

ISOSTYR – DAFNESTIL (PS compounds)

All MASTER e MB: based on ABS, MABS, PA, PBT, PC, PE, PEHD, PET, PMMA, POM, PP, PS, SAN, EVA

does not include phthalates or phthalates based substances.

The situation should be better explained for **polypropylene compounds** (ISOFIL – ISOPLEN – ISOGLASS – ISOFLEX – DAFNELEN – DAFNEGLASS - MASTER e MB based on PP). Sirmax is an independent compounder, does not polymerize propylene. PP is supplied to Sirmax by the main petrochemical companies. Sirmax is defined by REACH as a “downstream user” with limited responsibilities for authorization and registration. Actually Sirmax is using polypropylene based on the 4th generation Ziegler-Natta-catalyst, whose pre-catalyst does contain an internal donor, very often a phthalate like Dibutyl phthalate (DBP), Diisobutyl phthalate (DIBP) or Bis(2-ethylhexyl) phthalate (DEHP). During polymerization the catalyst is consumed or rapidly decomposed in substances which are partially

removed and partially remain in PP as catalytic residues. According information from suppliers and producers, phthalates traces in PP are below 10 ppm (mg/kg), and usually below the threshold of the analytical method. This concentration is lowered when Sirmax adds the filler to the polypropylene, down to maximum content of 5-10 ppm phthalate. Annex XIV of REACH, the Authorisation List, comprises Dibutyl phthalate (DBP), Diisobutyl phthalate (DIBP) and Bis(2-ethylhexyl) phthalate (DEHP) which must not be used anymore in concentrations above 0.1 wt% (1000 mg/kg) without an authorisation after 21st Feb 2015

- The maximum residual traces of phthalates in polypropylenes are much below the limits defined by REACH (0,1 wt%), thus no commercial polypropylene is subject to any restriction or ban in that respect.
- As part of the pro-catalyst mixture the DBP, DIBP or DEHP are isolated intermediates which are exempted from Authorisation under REACH, so there will be the possibility to use them without restrictions in the next years.
- The sunset date for these phthalates in 2015 does not prohibit the import or use of any products containing them in concentrations below 0.1 wt%. This is the case of our polypropylene compounds

A 5th generation phthalate-free Ziegler-Natta-catalyst is existing, but it will not quickly cover or replace the actual European PP production. For this reason a re-setting to no-phthalate containing PP is planned in Sirmax, but without urgency. Such materials were not already proposed to customers. For the mentioned reasons, we expect that there will be no limitations or restrictions to the actually used phthalate-based-catalyst polypropylenes, and that the ban of phthalates will not affect this market. This argument will probably speed up the switch between the 4th and 5th generation catalysts, but some years will be necessary, so that there will be the time to test these new materials.

Sirmax SpA

Regulatory Affairs Office