The Advanced Rechargeable & Lithium Batteries Association

Position Paper | March 2018

Recommendation about n-methyl-pyrrolidone (NMP; CAS no. 872-50-4) following ECHA's prioritisation on 5th February 2018

RECHARGE and EUROBAT would like to express their concern related to the recent ECHA's prioritisation for authorisation of N-Methyl-2-pyrrolidone (NMP) used as a solvent in the lithium-ion battery industry.

On 24th October 2017, the REACH Committee voted to approve the European Commission proposal to restrict N-Methyl Pyrrolidone (NMP) under Annex XVII of REACH.

As all potential risks are addressed by this NMP restriction, RECHARGE and EUROBAT expect that the Commission will continue to support its own use restriction rather than ECHA's recommendation for inclusion in Annex XIV.

About the usage of NMP in the lithium-ion battery industry.

Most lithium-ion batteries manufacturing processes are using NMP as a solvent of the electrodes binder, due to stringent solvation and dry atmosphere requirements.

Lithium batteries do not contain NMP. But high performance products are based on the usage of this solvent, totally removed during the manufacturing process.

The NMP used as a solvent is essentially collected after the drying process, reused for cleaning of equipment and finally sent for proper recycling.

The usage of NMP is KEY for the European battery industry's competitiveness and future development, especially in the context of the "Battery Alliance" where the European Commission would like to encourage the manufacturing of Li-ion electrodes and cells in Europe.

Key recommendation: Do not include NMP on Annex XIV

- ✓ All potential risks are already addressed by the restriction, which is **the most appropriate risk reduction measure for NMP.**
- ✓ No alternatives are available today for the battery industry use in the positive electrodes, as stated in the table C.01 of the background document to RAC/SEAC opinions on NMP (25 Nov 2014).
- ✓ An alternative to NMP for lithium batteries graphite negative electrodes was found 20 years ago, but even this alternative still needs NMP for the binder manufacturing. Indeed, the couple (NMP/PVDF) was successfully replaced by (water/mix of SBR/CMC) for the manufacturing of graphite cathodes for Li-ion batteries, but NMP is also used in the manufacturing of SBR.