

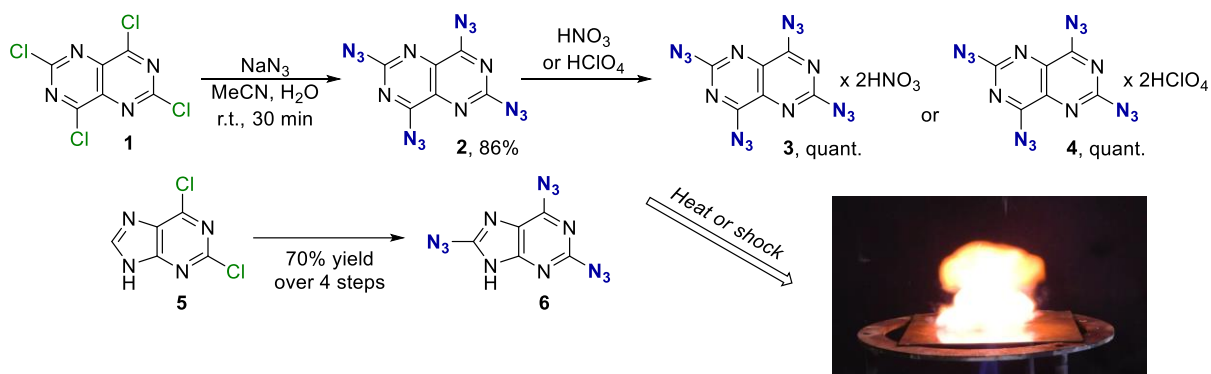
SYNTHESIS AND ENERGETIC PROPERTIES OF NOVEL ANNULATED POLYAZIDOPYRIMIDINES AND THEIR SOLVATES

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Binary C_xN_y organic compounds are impact-sensitive and possess explosive properties due to the high nitrogen content. The performance of nitrogen-rich compounds is attributed to the high heat of formation. Moreover, the main combustion product of such nitrogen-rich compounds is non-toxic nitrogen gas rather than the CO₂ from oxidation of a carbon backbone as in traditionally used explosives (TNT, RDX). Hence, nitrogen-rich compounds are currently the most promising candidates for the next-generation “green” explosives [1].

To the best of our knowledge, purine and its homologue - pyrimido[5,4-*d*]pyrimidine have not been used in the synthesis of energetic materials before. However, the nitrogen-rich backbone presents excellent features for application such as high energy density materials. Recently, we have designed an approach towards binary C₆N₁₆ compound **2**, triazidopurine (**6**), and their solvates. Also, energetic properties of these compounds have been tested (**Scheme 1**) [2].



Scheme 1. Synthesis of polyazidopyrimidines and their solvates

References:

- [1] Herweyer D., Brusso J. L., Murugesu M. *New J. Chem.* **2021**, *45*, 10150–10159.
[2] Leškovskis K., Mishnev A., Novosjolova I., Krumm B., Klapötke T. M., Turks M. *Cryst. Eng. Comm.* **2023**, *25*, 3866–3869.