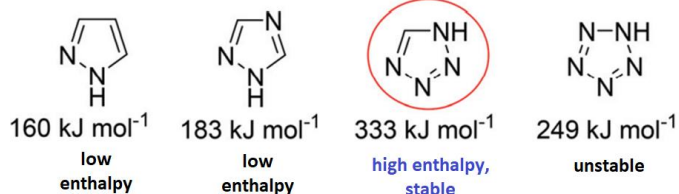
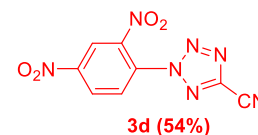
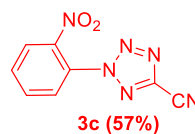
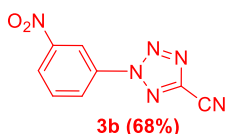
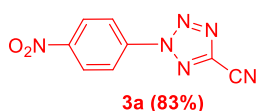
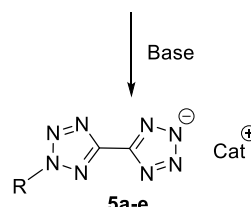
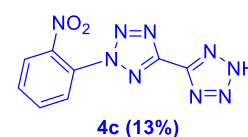
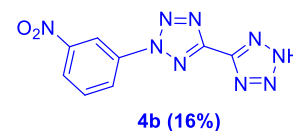
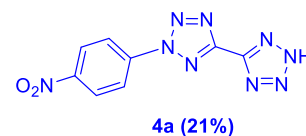
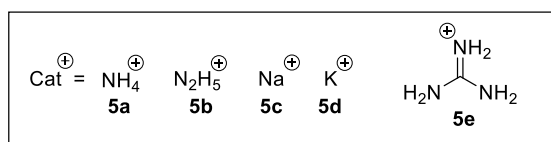
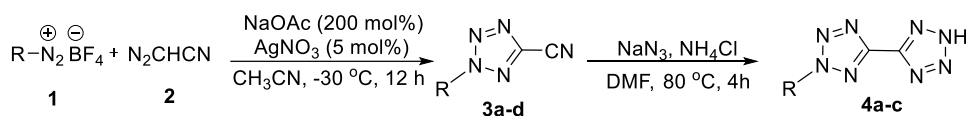


Synthesis

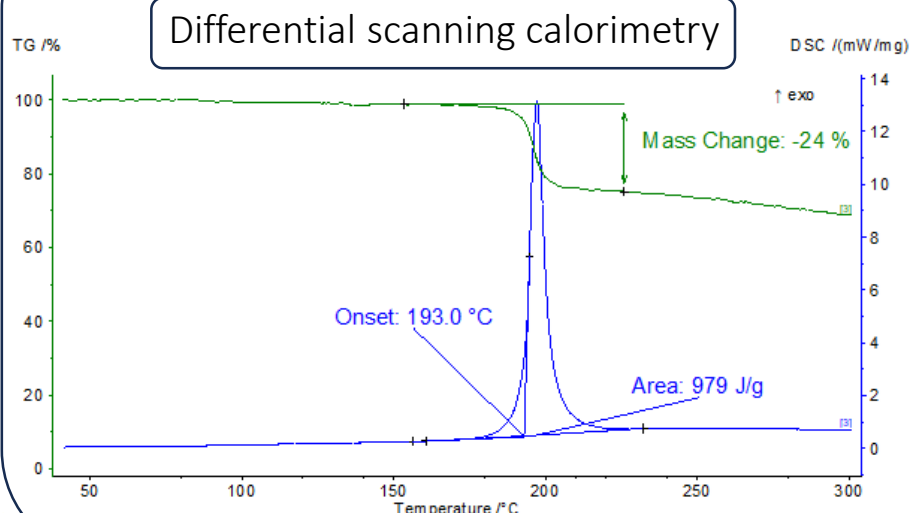


Tetrazoles and its derivatives bitetrazoles are a promising basis for the synthesis of novel energetic materials owing to their thermostability with the highest enthalpy among five-membered nitrogen-rich heterocycles.

One of the leading directions in organic chemistry is the synthesis of heterocyclic compounds, study of their reactivity and determination of practically useful properties. Nitrogen-rich systems are of particular interest because of their valuable properties that find application in a number of high-tech industries.

Over the last few decades a search of new energetic structures has focused on high-energy-density materials (HEDMs), which are constructed on the basis of various nitrogen-oxygen and nitrogen-rich heterocycles like oxadiazoles, tetrazoles, triazoles etc., possessing high positive enthalpy of formation, good thermal stability and environmental greenness.

Characterization of 2-(p-nitrophenyl)bitetrazole



| | 4a | TNT |
|--|------|------|
| density (g/cm ³) | 1.58 | 1.65 |
| T _d (°C) | 193 | 295 |
| ΔH _f ^o (kJ mol ⁻¹) | 494 | -67 |
| P (GPa) | 20.0 | 19.5 |
| D (km/s) | 6.6 | 6.9 |