

with conclusions not yet available . This idea is shared as being a personal curiosity which may be of interest for parallel experiments by others .

Rosco

Thinking further about this , hexamine alone may serve well as both a buffer for the pH and as an organic intermediate or catalyst in the reaction where it is attempted to react hydrazine nitrate with sodium nitrite to produce hydrazoic acid and/or sodium azide . This could be of value aside from any efforts at producing reactions involving a nitrosamine in other ways .

While reading some other old patents , I have found that it is not a new idea to use a nitrosamine for the azotization of hydrazine , and that at least one nitrosamine has been used successfully for the production of sodium azide . Diphenyl nitrosamine has been reacted with freebase hydrazine in methanolic sodium hydroxide to produce sodium azide in 70 per cent yield . This was reported by the 1913 German patent , DE273667 . Also there was a brief reference to this German patent by a British patent GB170359 , which relates to cyanuric triazide , which may be produced by reaction of cyanuric trihydrazide similarly with a nitrosamine , although no details are described . Since R-Salt has three nitroso groups and is a non-volatile reagent , it could be a very good nitrosation agent if it reacts as efficiently as is reported for diphenylnitrosamine . A possible advantage of a nitrosamine is certainly lower volatility and perhaps greater stability in aqueous solution than organic nitrites .

It appears certain that a narrow pH range is going to apply to any reaction where hydrazine is being azotized to hydrazoic acid , probably because the azide group is an unstable resonance ring , whose formation is a "delicate balance" easily prevented , and also easily disrupted once formed . The very instability which makes azide compounds energetic materials , also establishes a narrow range of conditions where their formation is possible . It would seem also that because the azide group is a resonance ring structure , that the chemistry and theory regarding its behavior is more complex than the usual "ionic theory" as would generally apply to inorganic compounds . The behavior of these hydrazine and azide reactions is sensitive to conditions like the complex reactions of organic ring compounds , more than it resembles the typical and easily understood reactions for inorganic compounds .

Just when you believe you know inorganic chemistry very well , here comes hydrazine and inorganic "nitrogen ring" chemistry !

Rosco

Rosco P. Coaltrain

9 years ago

[SNIP]

The reply link for the message at the top of the thread is returning a server error , so I am posting the text for the patent which was the start of this discussion here .

GB128014 , Complete Specification ,
Improvements in and relating to the Production of Azides
application date: June 17 , 1918 No. 9952 / 18
complete accepted : June 17 , 1919

I , William Richard Hodgkinson , C.B.E. , of Ordnance College , Woolwich , London , S.E. 18 , Professor of Chemistry and Metallurgy , do hereby declare the nature of this invention and in what manner the same is to be performed , to be particularly described and