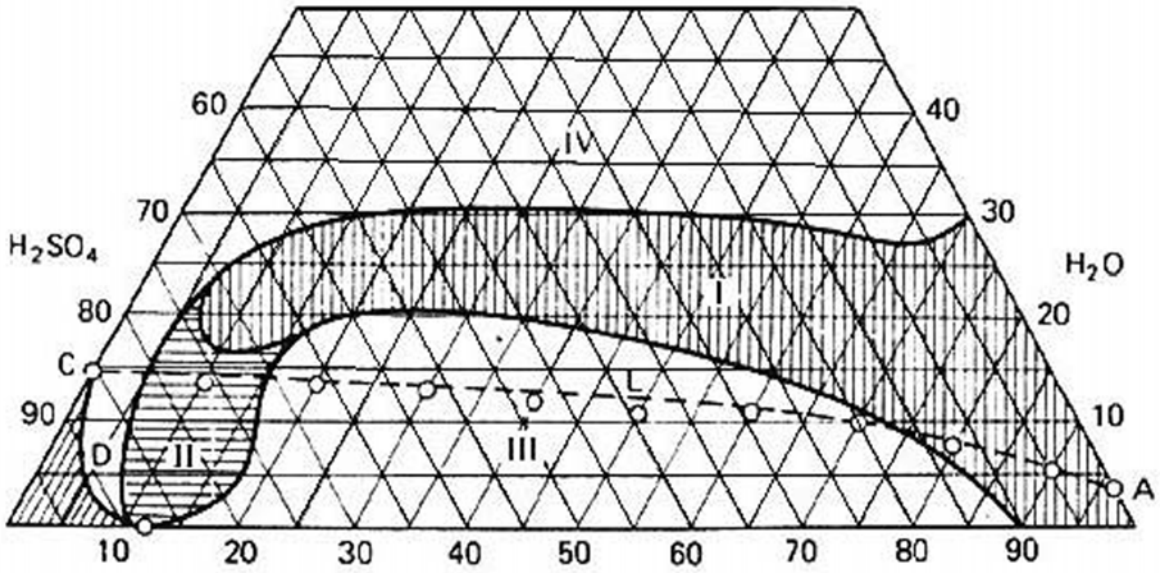

HNO3

(numbers express percentage concentration)

Area I Formation of PETN with yield of 94-98% without formation of sulfoesters.
Area II Formation of PETN via sulfoesters.
Area III Area of low yields (10-50%) due to the high NOx production and oxidation processes
Area IV PETN not forming

Curve A->L->C shows limit of detection for NO2+ ions and illustrates that nitration is by molecular nitric acid reacting with the polyol . This was confirmed by nitration using isotopic markers .

Curve C->D shows area of complete dissociation of HNO3 into NO2+ ions .