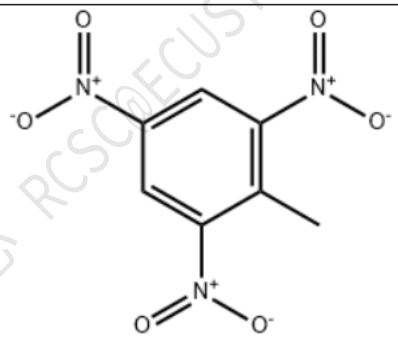
DSC Testing Report for TNT

Report #:	ECUST-RCSC-20231010-001		
Institute:	Reactive Chemical Safety Center at East China University of Science and Technology, Shanghai, China. RCSC@ECUST（https://rcsc.ecust.edu.cn/）		
Analyst:	Weiye Li	Test time:	2023.10.18
Reporter:	Weiye Li	Report time:	2023.10.19
Reviewer:	Min Sheng	Review time:	2023.11.1
Limits of Applicability:	The testing data generated by the RCSC@ECUST is based on specific samples from a certain supplier. During the testing process, we have made every effort to ensure the reliability of the data, but we still cannot exclude data quality issues caused by supplier differences, sample impurities, deterioration of long-term storage, testing method error, and human error. Therefore, we suggest only using RCSC testing data as a reference, and we do not assume any responsibility for any losses caused by using this data.		
Data Copyright:	Prohibit the sharing of this report on websites outside the Reactive Chemical Safety Center at East China University of Science and Technology. If you have any questions, please contact RCSC@ECUST (https://rcsc.ecust.edu.cn/).		

Chemical Names	Trinitrotoluene TNT
Synonyms	2,4,6-Trinitrotoluene
Molecular Formula	C7H5N3O6
Hill Notation Formula	C7H5N3O6
CAS #	118-96-7
Test	DSC_N2
Notes	Glass capillary, 0~400 ℃, 10℃/min, Nitrogen headspace

Detail information of the tested sample:

Project	Development of Reactive Chemical Database for RCSC@ECUST
Sample Description	Colorless to yellow oily liquid
Composition	⩾99%
Chemical Structure	
Supplier	Standard Chemicals
Storage Information	
Sample Status	White solid
Other notes	

Testing Result:

1st test					
Instrument: TA DSC X3		DSC crucible: Glass Capillary		Headspace gas: N2	
Tested sample mass: 0.676 mg		Total pre-test mass: 24.655mg		Total post-test mass: 24.654mg	
Start Temperature: 0°C		Scan rate: 10°C/min (Twice)		End Temperature: 400°C	
#	Endo/Exo Peak	Onset T (°C)	Peak T (°C)	End T (°C)	Total Heat (J/g)
1	Endotherm	76	81	91	96.043
	Exotherm	263	316	394	-4527.3
Notes: [a] TNT equivalent ratio 1.08					

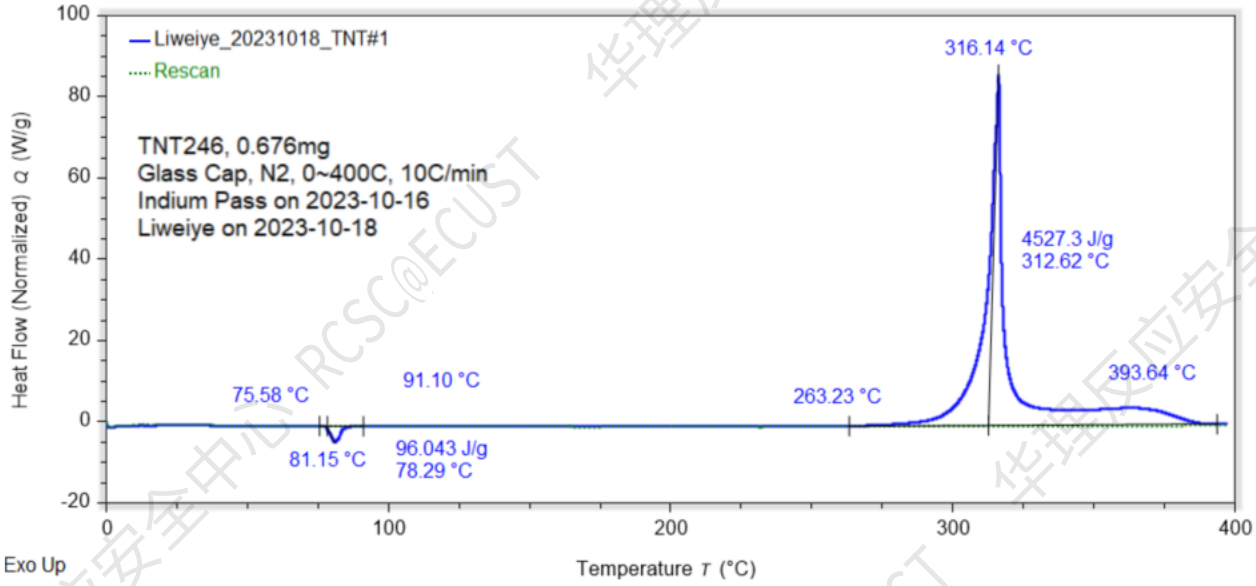


Figure 1. DSC Curve with Auto scale, the solid line represents the first scan (with integration); The dashed line represents the second scan

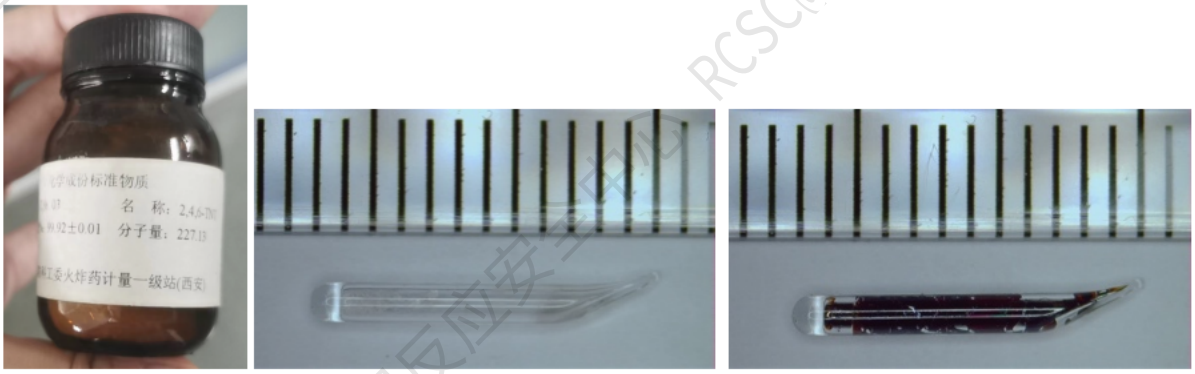


Figure 2. Tested Sample Pictures (tested sample before test and after test)

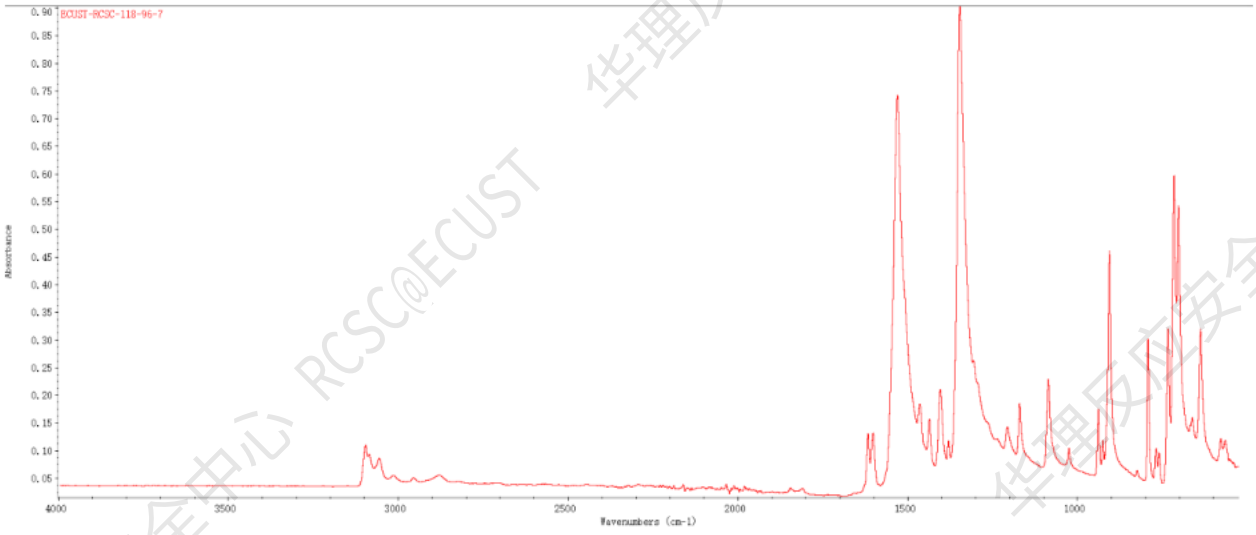


Figure 3. FTIR Spectrum of the Tested Sample