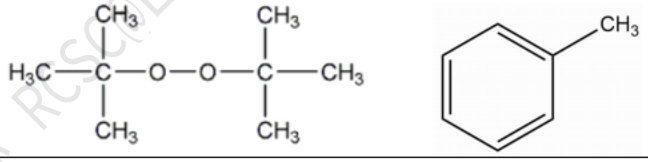
反应安全中心
Reactive Chemical Safety Center

DSC Testing Report for 19.82wt% DTBP/80.18wt% Toluene

Report #:	ECUST-RCSC-20231010-002		
Institute:	Reactive Chemical Safety Center at East China University of Science and Technology, Shanghai, China. RCSC@ECUST（https://rcsc.ecust.edu.cn/）		
Analyst:	YuTao Yang	Test time:	2023-11-08
Reporter:	YuTao Yang	Report time:	20231122
Reviewer:	Min Sheng	Review time:	20231201
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	19.82wt% Di-tert-butyl peroxide/80.18wt% Toluene, 19.82wt% DTBP/80.18wt% Toluene
Synonyms	19.82wt% Di-tert-butyl peroxide/80.18wt% Toluene, 19.82wt% DTBP/80.18wt% Toluene
Molecular Formula	C8H18O2，C7H8
Hill Notation Formula	C8H18O2，C7H8
CAS #	110-05-4，108-88-3
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	Prepared a 19.82wt% di-tert-butyl peroxide/80.18wt% toluene solution in lab, then stored it in the freezer for use for the next week
Composition	di-tert-butyl peroxide: 19.82wt% toluene: 80.18wt%
Chemical Structure	
Supplier	DTBP from Thermo Scientific
Storage Information	After purchasing DTBP, place it in the freezer for about 8 months; Toluene stored at room temperature for about 1.5 years
Sample Status	Clear liquid
Other notes	

Testing Result:

1st test		
Instrument: MT DSC 3+	DSC crucible: Glass Capillary	Headspace gas: N2
Tested sample mass: 0.937 mg	Total pre-test mass: 23.047 mg	Total post-test mass: 23.044 mg
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	Exotherm	128	191	221	-305

Notes:

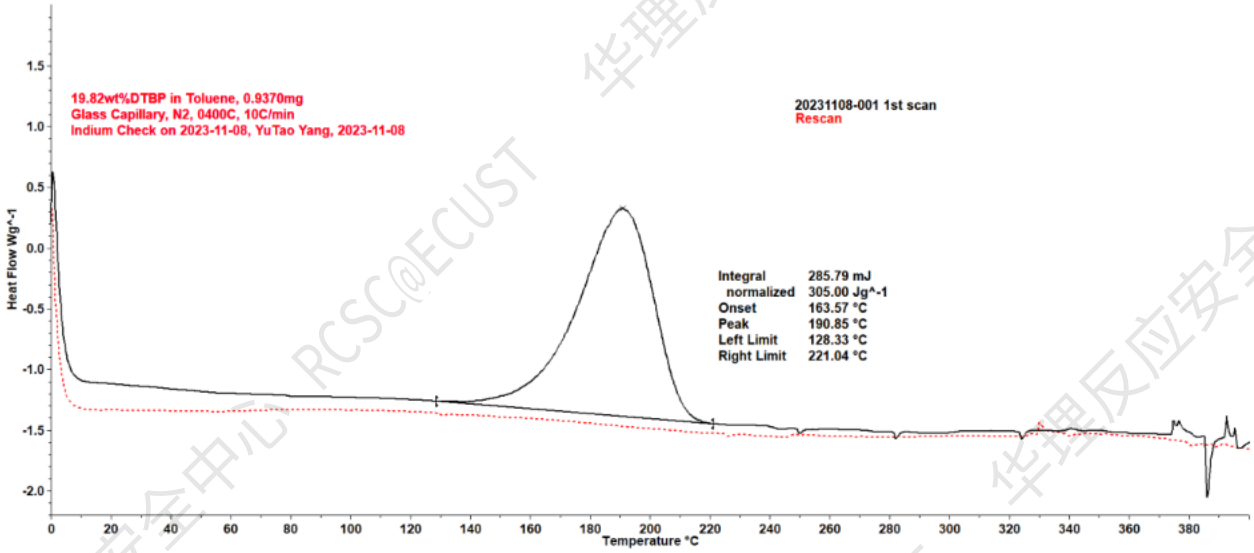


Figure 1. DSC Curve with Auto scale, the solid line represents the first scan (with integration); The dashed line represents the second scan

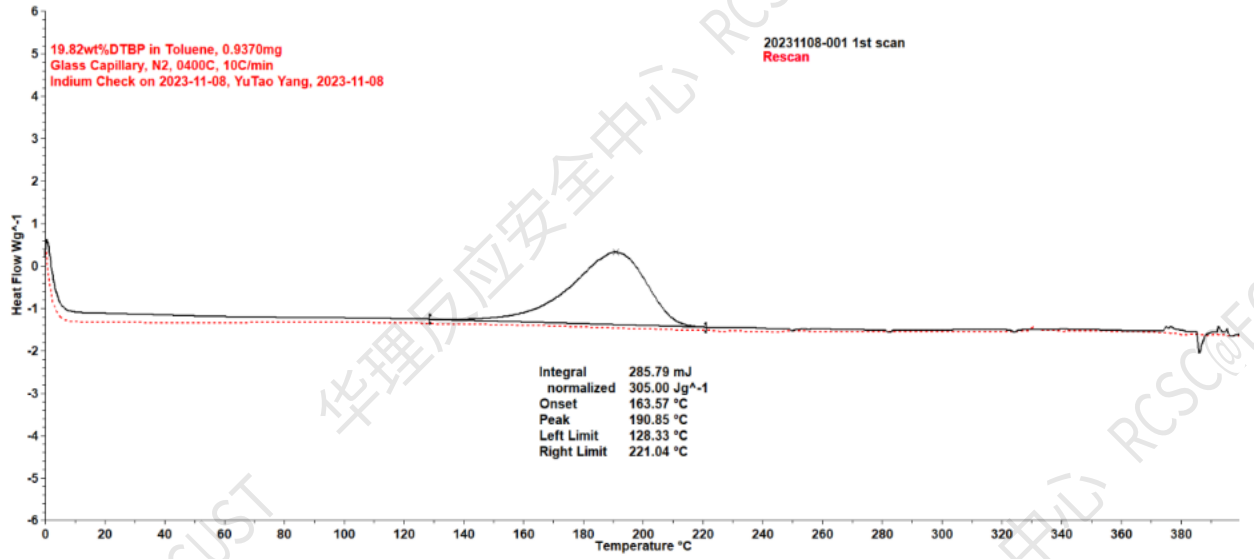


Figure 2. DSC Curve with -6~6 W/g scale, the solid line represents the first scan (with integration); The dashed line represents the second scan

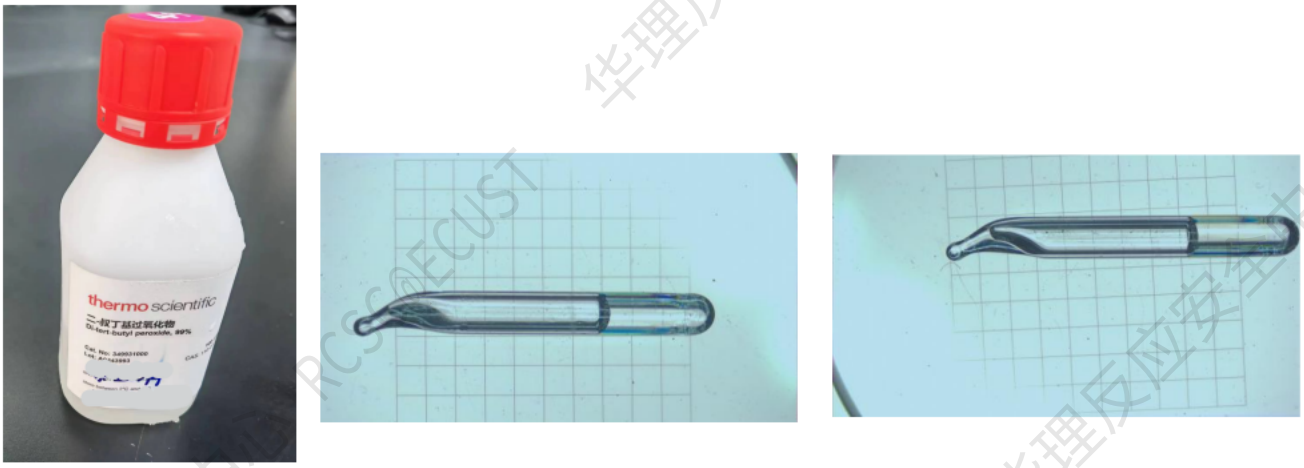


Figure 3. Tested Sample Pictures (original package, tested sample before test and after test)

2nd test		
Instrument: MT DSC 3+	DSC crucible: Glass Capillary	Headspace gas: N2
Tested sample mass: 0.534 mg	Total pre-test mass: 23.464 mg	Total post-test mass: 23.464 mg
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	Exotherm	125	191	227	-300

Notes:

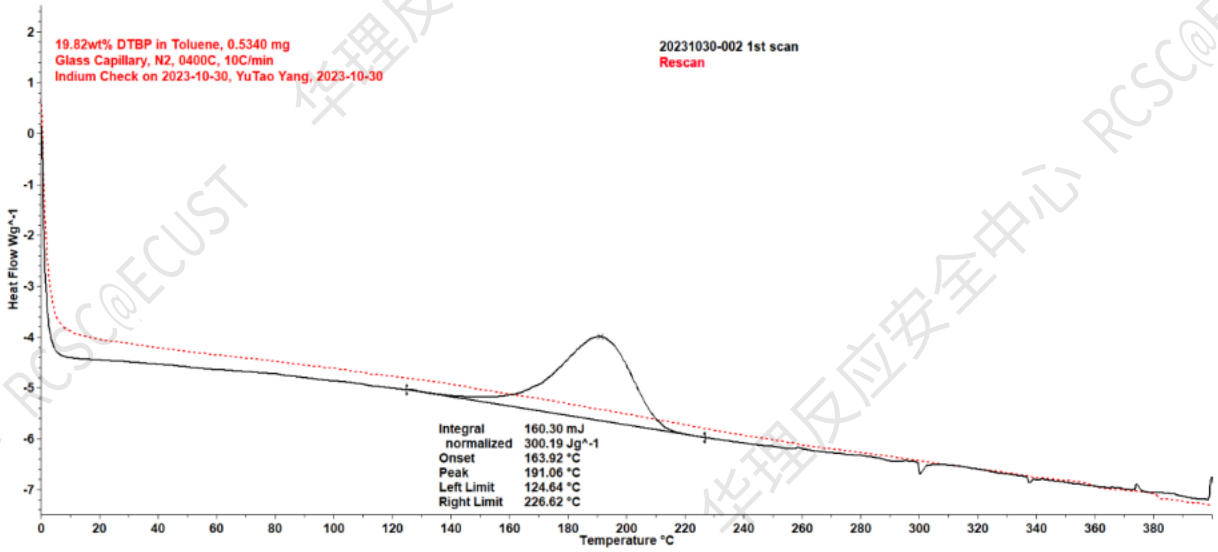


Figure 1. DSC Curve with Auto scale, the solid line represents the first scan (with integration); The dashed line represents the second scan

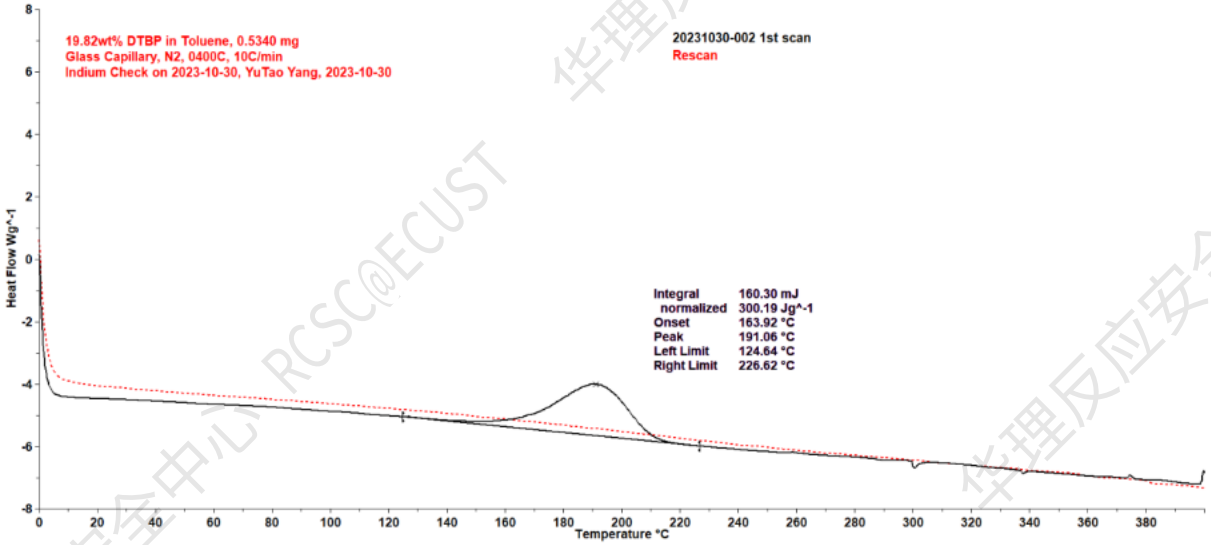


Figure 2. DSC Curve with -8~8 W/g scale, the solid line represents the first scan (with integration); The dashed line represents the second scan

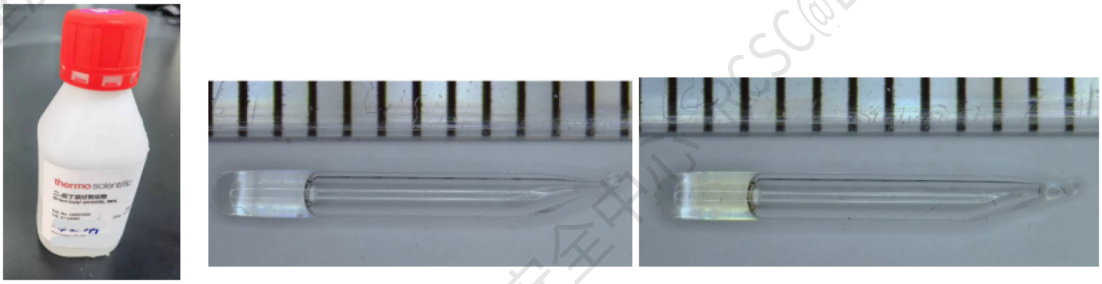


Figure 3. Tested Sample Pictures (original package, tested sample before test and after test)

3rd test		
Instrument: MT DSC 3+	DSC crucible: Glass Capillary	Headspace gas: N2
Tested sample mass: 0.487 mg	Total pre-test mass: 23.440 mg	Total post-test mass: 23.439 mg
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	Exotherm	125	191	222	-306

Notes:

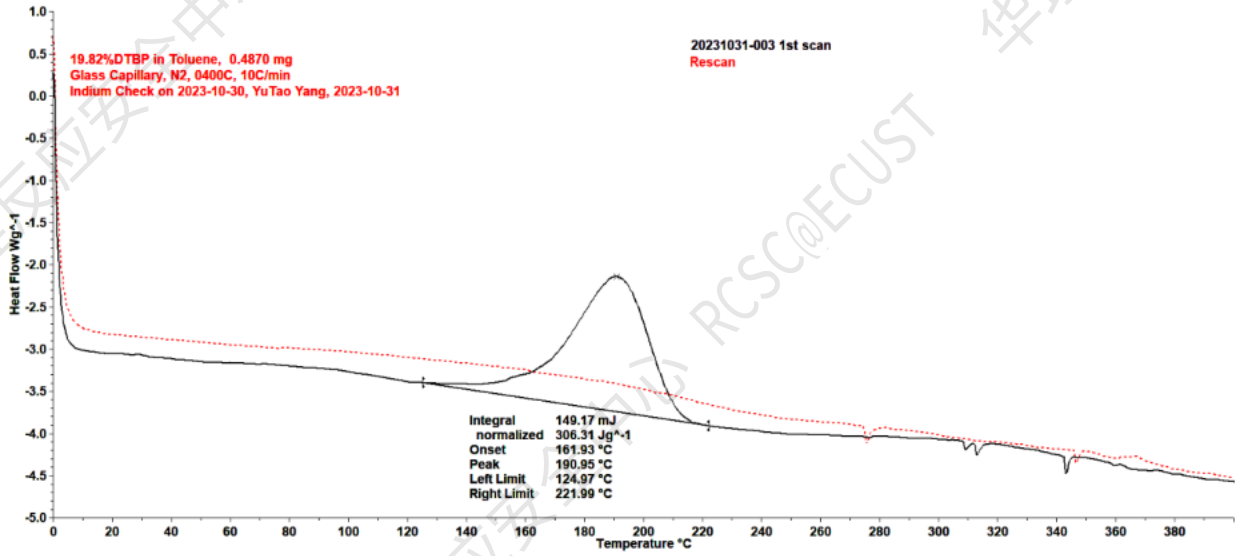


Figure 1. DSC Curve with Auto scale, the solid line represents the first scan (with integration); The dashed line represents the second scan

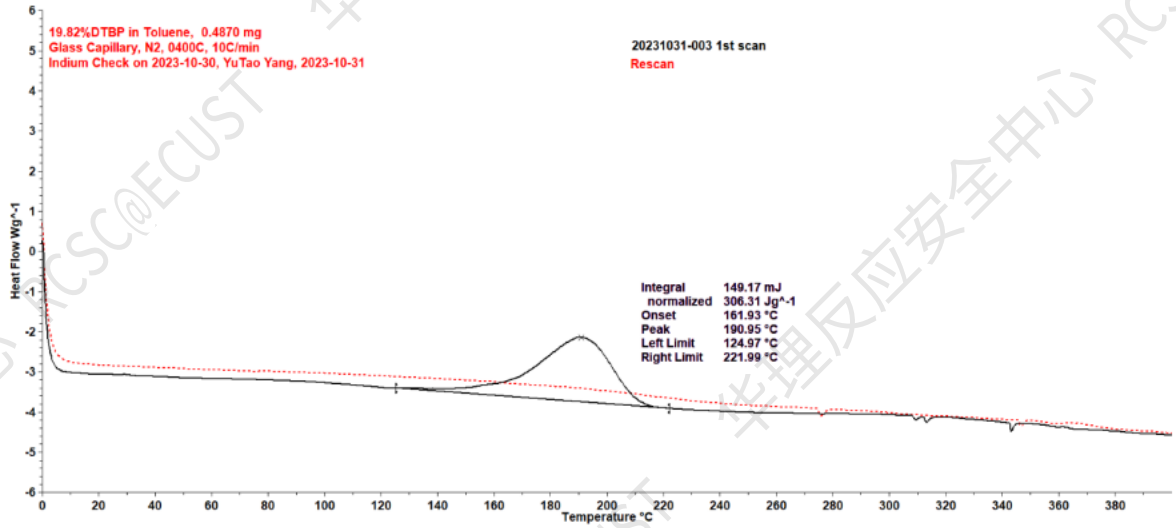


Figure 2. DSC Curve with -6~6 W/g scale, the solid line represents the first scan (with integration); The dashed line represents the second scan

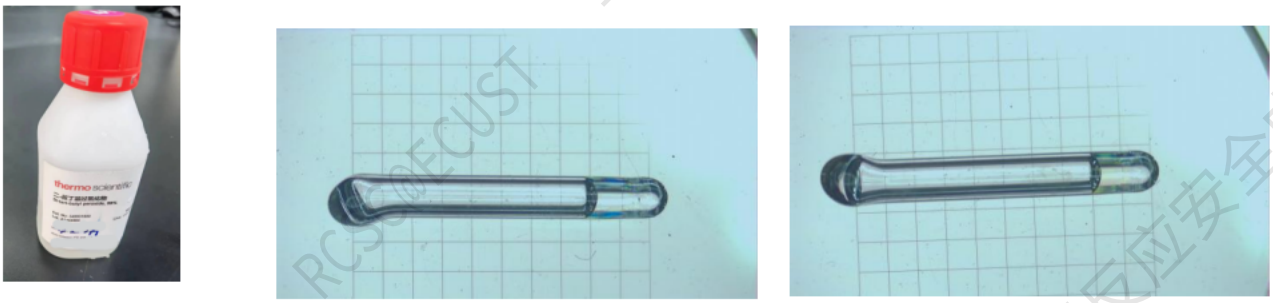


Figure 3. Tested Sample Pictures (original package, tested sample before test and after test)

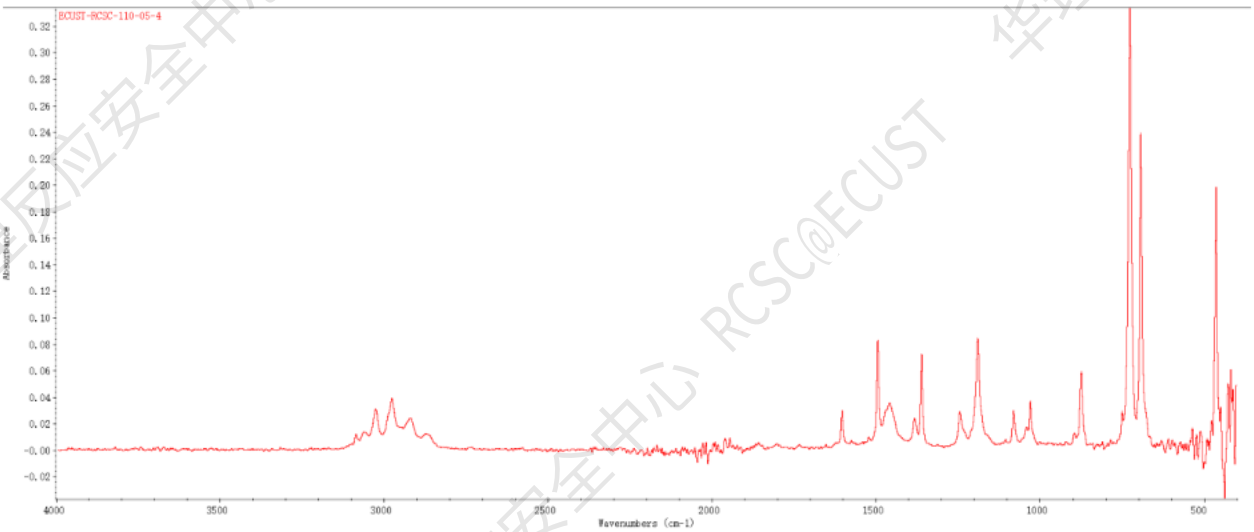


Figure 4. FTIR Spectrum of the Tested Sample