燃煤助燃剂助燃效果评价试验报告

Coal Catalyst Evaluation Test Report

燃煤助燃剂效果评价规范报告的具体内容：

The specific contents of the standard report on the evaluation of the effect of catalyst:

（1）样品与分析仪器

1）试验委托单位名称： AB助燃剂公司

2）送样日期：2018年12月15日

3）仪器型号和坩埚类型：STA 449 F3，石英坩埚

4）元素分析仪

(1) samples and analytical instruments

1) name of the company: AB Catalyst Company

2) sample delivery date: December 15, 2018

3) instrument model and crucible type: STA 449 F3, quartz crucible

4) elemental analyzer

（2）试验条件

升温速率：30°C/min；样品量：250±1 mg；气氛：150ml/min空气；助燃剂评价用燃烧终温：T1、T2、T3、T4。燃烧终温T1、T2、T3、T4的确定方法如下：

1）1300°C下样品燃烧曲线如图1所示，从图1中可读出样品燃烧剩余百分数（α_T）与温度T的关系。

(2) test conditions

Heating rate: 30 °C / min; Sample size: 250±1 mg; Atmosphere: 150ml/min air; Final combustion temperatures for catalyst evaluation: T1, T2, T3, T4. The determination methods of final combustion temperature T1, T2, T3 and T4 are as follows:

1) samples under 1300 °C combustion curve is shown in figure 1, can be read from the figure 1 sample burning residual percentage (α_T) and the relationship between the temperature T.

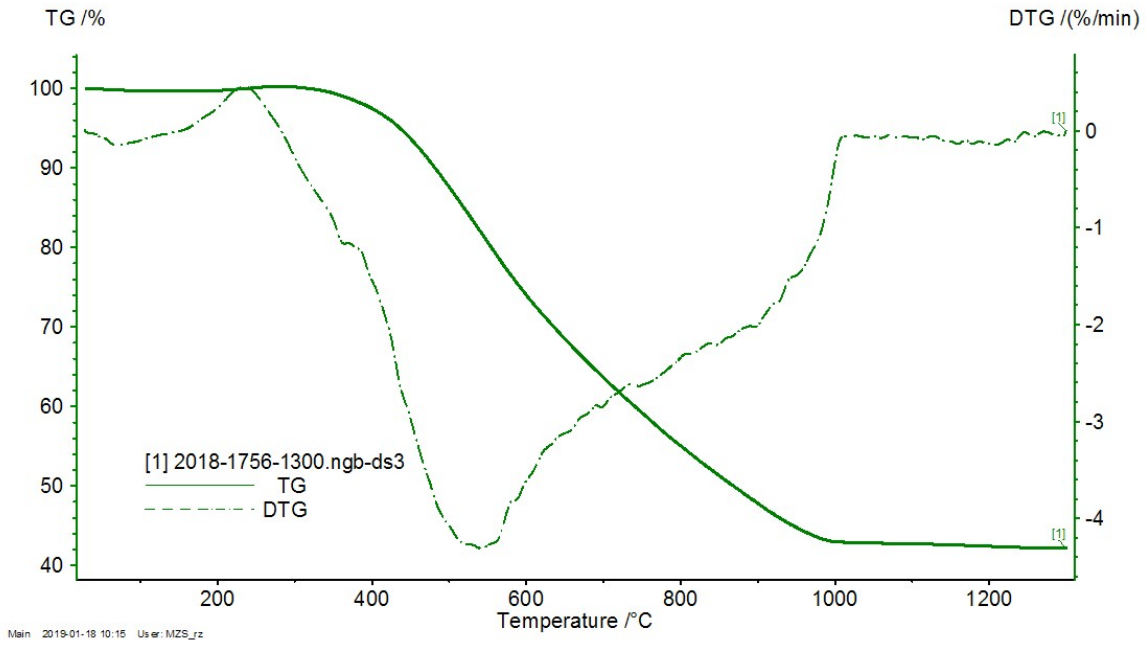

图1 1300℃下2018-1756（样品1#（空白））燃烧曲线

Figur 1 At 1300℃, 2018-1756（Sample1#(blank)）combustion curve

2)以空干基灰分(A_{ad})的1.11倍值作为确定燃烧温度的剩余百分数参考值，计算公式见式（1）：

2) 1.11 times of air dry base ash content(A_{ad}) is taken as the reference value for determining the residual percentage of combustion temperature. The calculation formula is shown in formula (1) :

$$\alpha_{Tb} = 1.11 A_{ad} \qquad (1)$$

α_{Tb}——温度为Tb时的样品燃烧剩余百分数，%；

α_{Tb}——When the temperature is Tb, the sample combustion residual percentage, %;

A_{ad}——试验煤样灰分空干基值。

3)根据图1中α_T与温度的关系，由计算出的α_{Tb}值读取对应温度点Tb。

4)根据Tb确定燃烧终温，接近Tb且为50整数倍的温度点作为第一个燃烧终温温度点(T1)：

当T1大于850°C，依次递减50°C作为第二(T2)、第三(T3)、第四(T4)燃烧终温温度点；

当T1小于等于850°C，依次递减20°C作为第二(T2)、第三(T3)、第四(T4)燃烧终温温度点。

因此，950°C作为送检煤样的第一燃烧终温温度值(T1)，900°C,850°C,800°C作为第二(T2)、第三(T3)、第四(T4)燃烧终温温度值点。

A_{ad} -- test coal ash dry base value.

3) according to the relationship between T and temperature in figure 1, the temperature point Tb can be read from the calculated α_{Tb} value.

4) determine the final combustion temperature according to Tb, and the temperature point close to Tb and 50 integer times is taken as the first final combustion temperature temperature point (T1) :

When the T1 is greater than 850 °C, decreasing 50 °C as the second (T2), third (T3), fourth (T4) terminal temperature combustion temperature point;

When the T1 is less than or equal to 850 °C, decreasing 20 °C as the second (T2), third (T3), fourth point

(T4) terminal temperature combustion temperature.

Therefore, 950 °C for test, the first terminal temperature burning coal sample temperature (T1), 900 °C, 850 °C, 800 °C for second (T2), third (T3), fourth (T4) final temperature combustion temperature.

（3）燃煤助燃剂助燃效果 Coal catalyst effect

1） 燃煤助燃剂助燃效果评价指标值见表1；

Coal catalyst effect evaluation index see table 1.

表1 燃煤助燃剂效果评价指标

Combustion final temperture 燃烧终温，°C	950°C (T1)	900°C (T1)	850°C (T2)	800°C (T3)
$C_{d,T}$（原煤残渣 Coal ash residue），%	1.21	6.18	10.58	17.37
$C_{d,T}$（助燃剂残渣 Catalyst residue），%	0.00	4.78	8.69	15.28
ΔC_T，%	1.21	1.40	1.89	2.09

Improvement with CAT.

注1：ΔC_T =$C_{d,T}$（样品1#（空白）残渣）- $C_{d,T}$（样品1#（加剂）掺量0.065%残渣），表示不同燃烧温度下的残碳差值。

注2：国家标准以不同燃烧终温下残碳差值（ΔC_T）的大小表示助燃效果，残碳差值越大，助燃效果越好。

2）不同温度下燃煤助燃剂助燃效果评价指标变化趋势见图2；

Note 1: ΔC_T =$C_{d,T}$ (sample #1 (blank) residue) - $C_{d,T}$ (sample #1 (additive) mix volume residue 0.065% content), said carbon residue under different combustion temperature difference.

Note 2: the national standard decides the effect of catalyst by carbon residue difference under different final temperature (ΔC_T), the greater the difference, the better effect of the catalyst.

2) see fig. 2 for the change trend of evaluation index of combustion effect of coal catalyst at different temperatures;

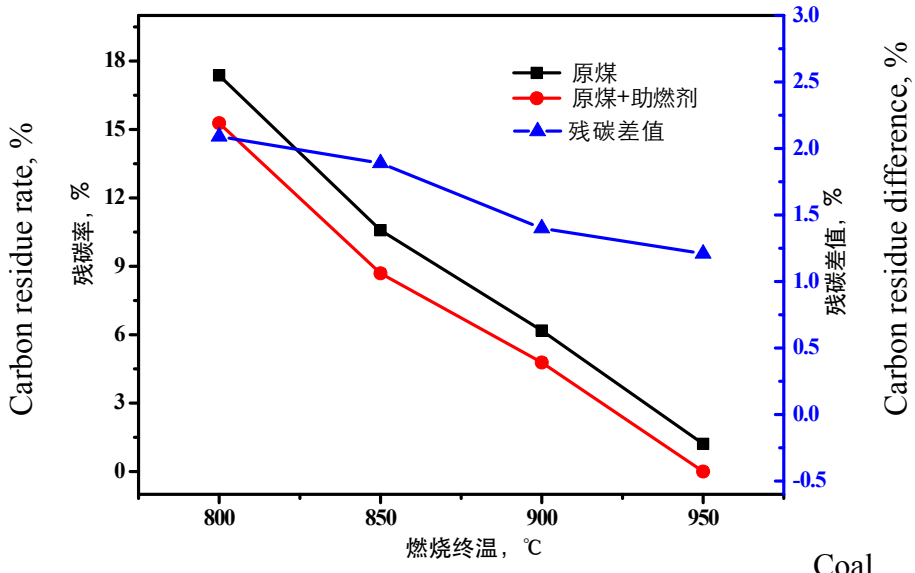

图2 不同 趋势

FIG. 2 variation trend of catalyst effect at different temperatures

3) 2018-1756（样品1#（空白））和2018-1758（样品1#（加剂））燃烧TG-DTG曲线见图3至图10。

3) combustion TG-DT curves of 2018-1756 (sample #1 (blank)) and 2018-1758 (sample #1 (additive)) are shown in figure 3 to figure 10.

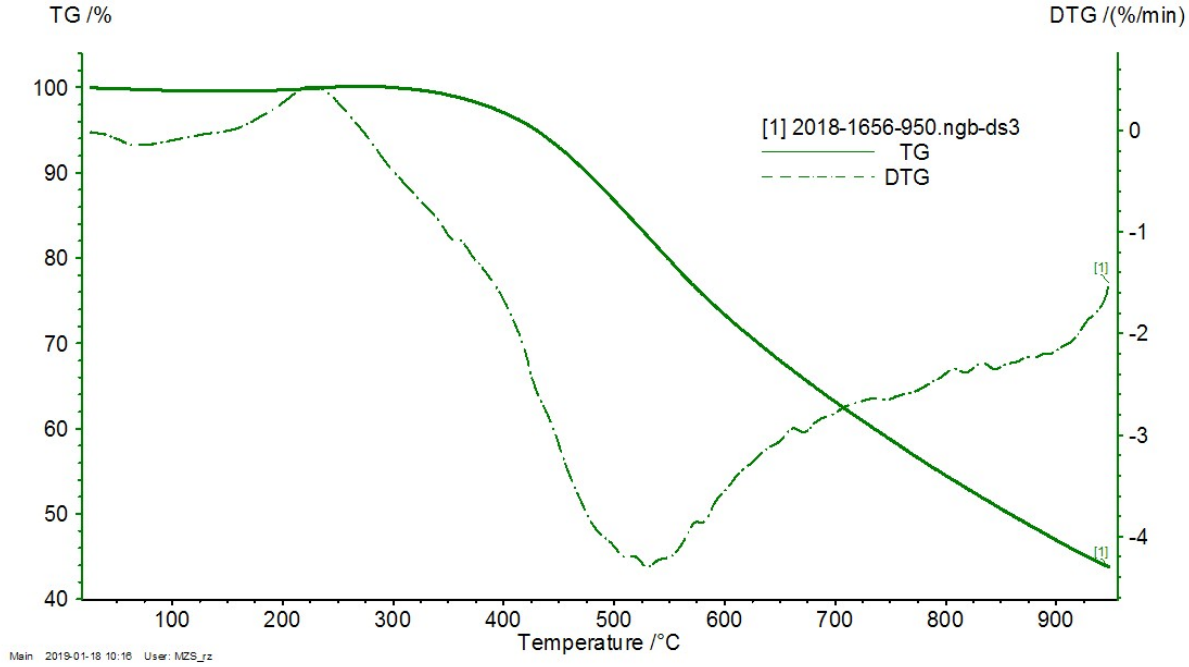

图3 950°C下2018-1756（样品1#（空白））燃烧TG-DTG曲线

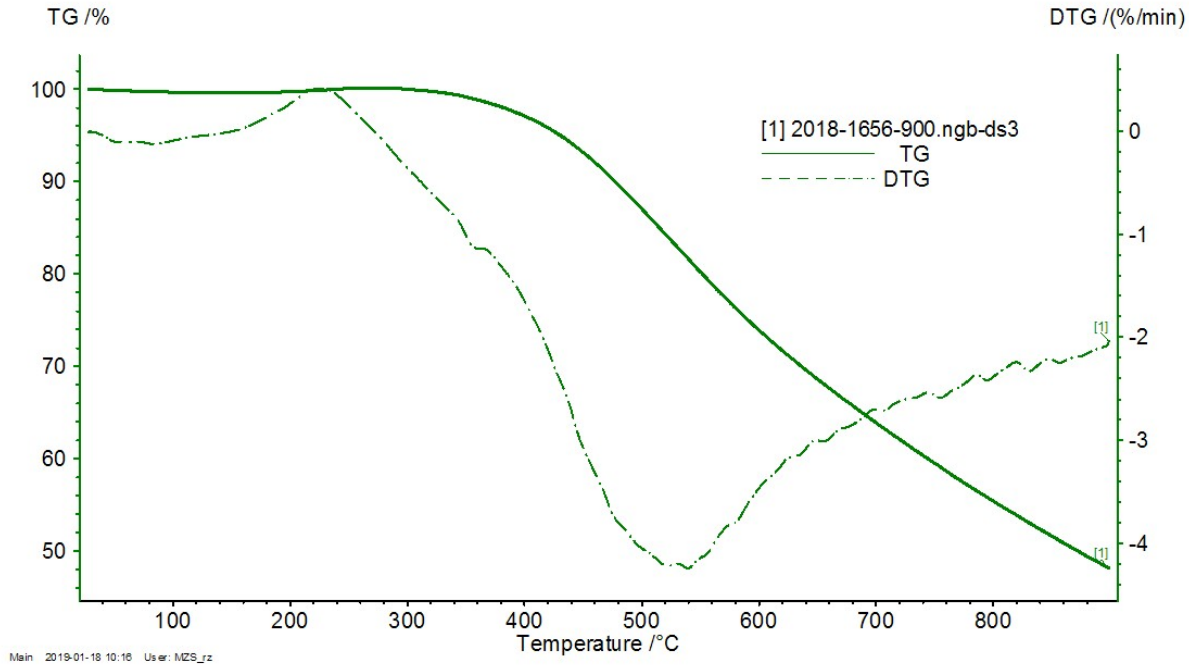

图4 900°C下2018-1756（样品1#（空白））燃烧TG-DTG曲线

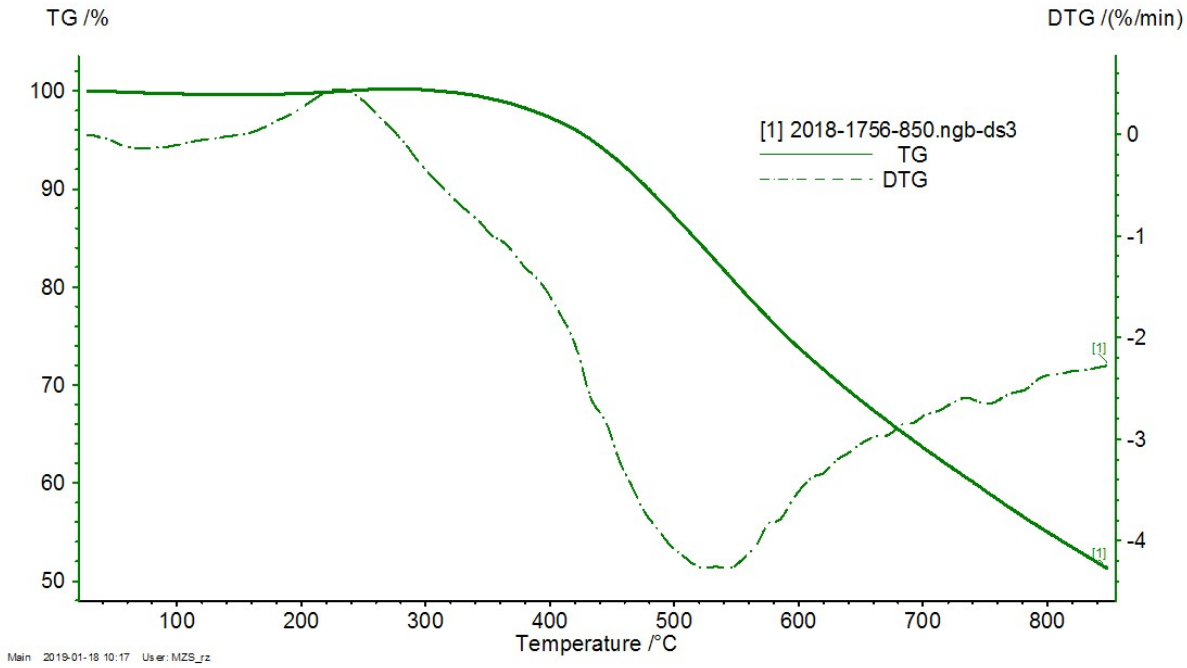

图5 850°C下2018-1756（样品1#（空白））燃烧TG-DTG曲线

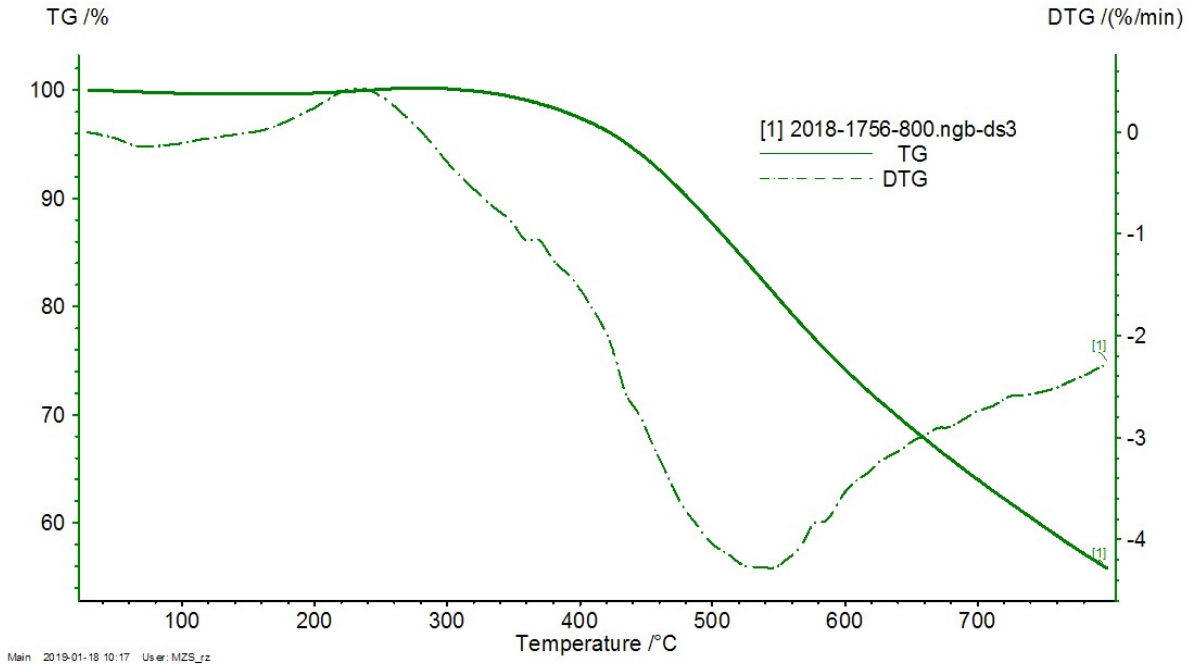

图6 800°C下2018-1756（样品1#（空白））燃烧TG-DTG曲线

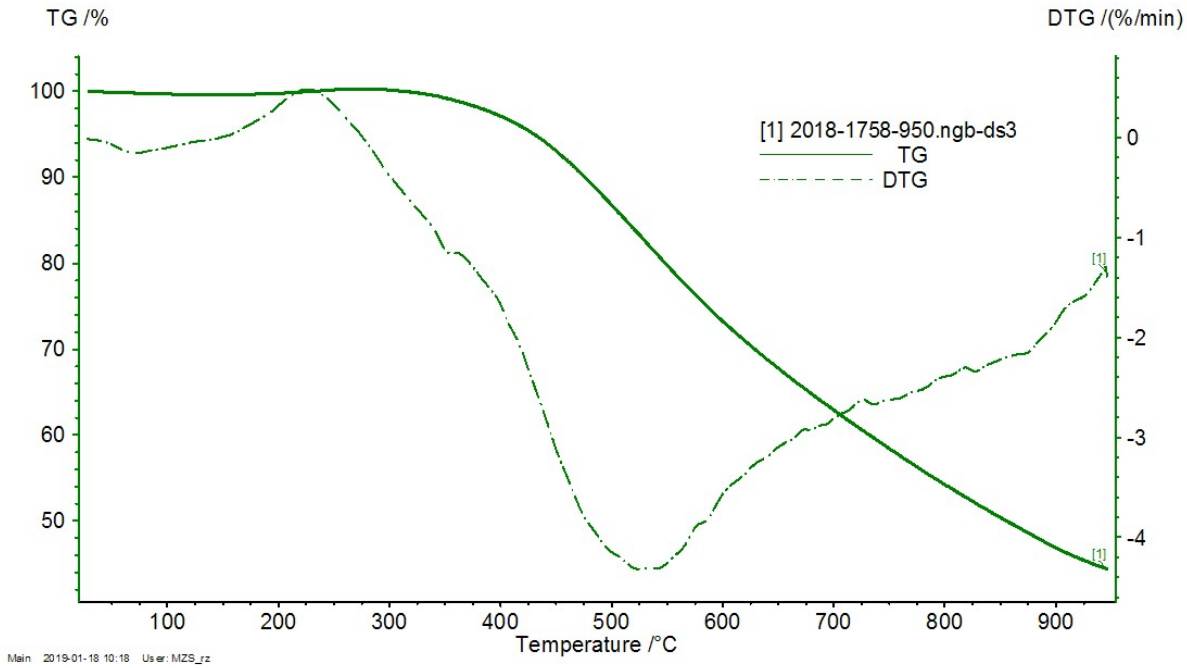

图7 950°C下2018-1758（样品1#（加剂））燃烧TG-DTG曲线

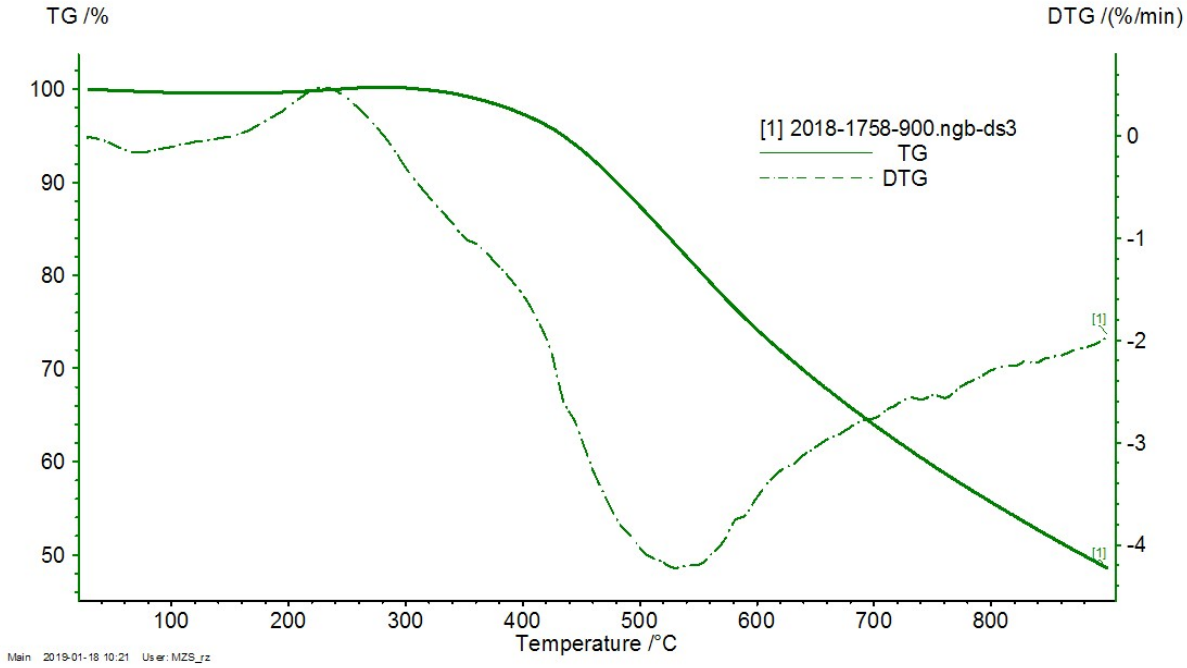

图8 900°C下2018-1758（样品1#（加剂））燃烧TG-DTG曲线

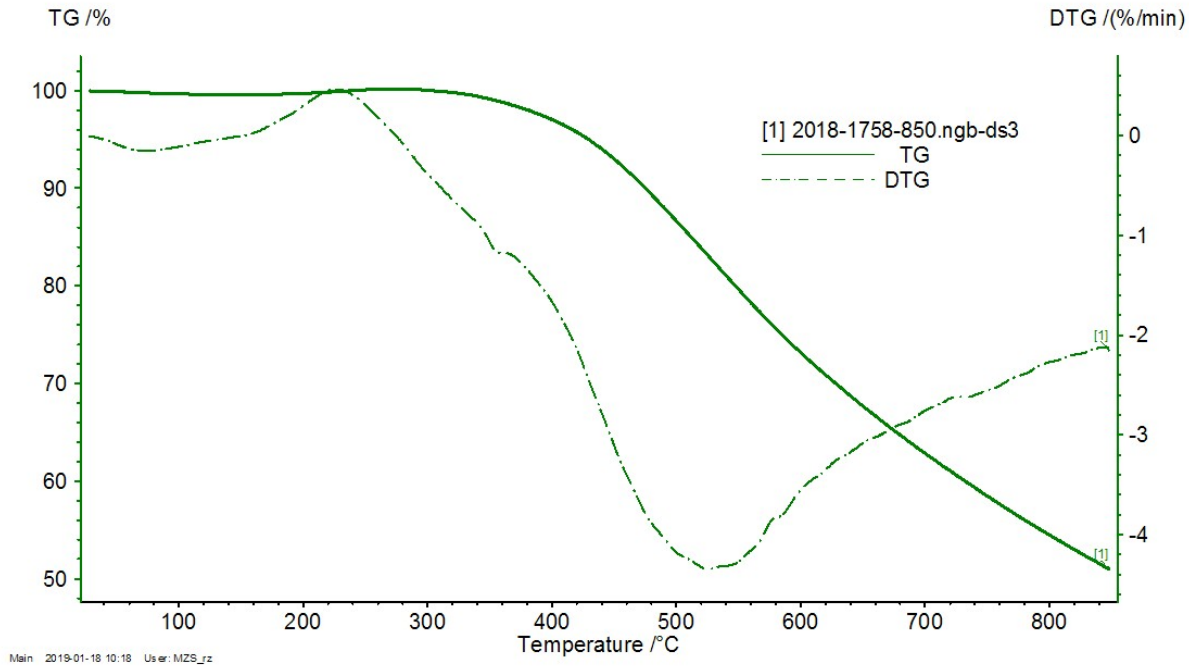

图9 850°C下2018-1758（样品1#（加剂））燃烧TG-DTG曲线

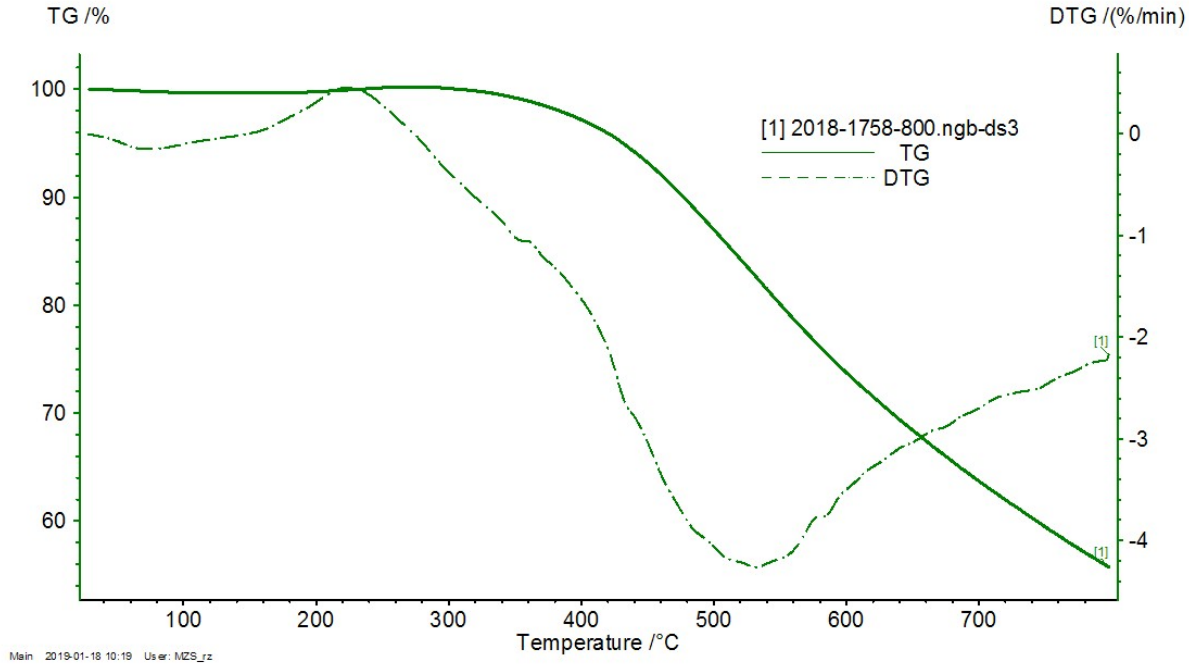

图10 800°C下2018-1758（样品1#（加剂））燃烧TG-DTG曲线