The Calculations for the Polymer Energy Input:

The calculations based on the minimal DSC measurement :

Converting the specific heat from J/g/C to J/kg/K :

```
In[1]:= Cp = 0.4 * (1000 / 1)
Out[1]= 400.
```

Converting the volume from in^3 to cm^3 :

```
In[2]:= vol = 0.03 * (2.54 / 1) ^ 3
Out[2]= 0.491612
```

Calculating the mass in kg, with density as 1 g/cm^3 :

```
In[3]:= mass = 1 * vol / 1000
Out[3]= 0.000491612
```

Defining the temperatures of interest :

```
In[4]:= T0 = 25; Tg = 70; Tf = Tg + 20;
```

Calculating the Energy Required in J:

```
In[5]:= Eng1 = mass * Cp * (Tf - T0)
Out[5]= 12.7819
```

Calculating the Power in Watts for vayring times :

```
In[6]:= t1 = 15; t2 = 30; t3 = 60;
```

In[7]:= **P1 = Eng1 / t1**

Out[7]= 0.852127

In[8]:= **P2 = Eng1 / t2**

Out[8]= 0.426064

In[9]:= **P3 = Eng1 / t3**

Out[9]= 0.213032

Calculations based on the Lelieveld data :

Define the specific heat :

In[10]:= **Cp2 = 1900;**

Define the Energy Required in J :

In[11]:= **Eng2 = mass * Cp2 * (Tf - T0)**

Out[11]= 60.7141

Calculating the Power in Watts for varying times :

In[12]:= **P4 = Eng2 / t1**

Out[12]= 4.0476

In[13]:= **P5 = Eng2 / t2**

Out[13]= 2.0238

In[14]:= **P6 = Eng2 / t3**

Out[14]= 1.0119