In [1]:

```python
import pandas as pd

# Load the CSV file into a DataFrame
file_path = '/path/to/your/csvfile.csv'  # Update with the actual file pat
df = pd.read_csv('Data Cleaning and Preprocessing.csv')

# Clean the column names by stripping any leading/trailing spaces
df.columns = df.columns.str.strip()

# 1. Filtering data where 'Y-Kappa' > 25
filtered_df = df[df['Y-Kappa'] > 25]

# 2. Handling missing values by filling NaNs in 'SulphidityL-4' with the m
mean_sulphidity = df['SulphidityL-4'].mean()
df['SulphidityL-4'].fillna(mean_sulphidity, inplace=True)

# 3. Calculating summary statistics for numerical columns
summary_stats = df.describe()

# Display the filtered data and summary statistics
print("Filtered Data (Y-Kappa > 25):")
print(filtered_df.head())

print("\nSummary Statistics:")
print(summary_stats)
```

```
Filtered Data (Y-Kappa > 25):
   Observation  Y-Kappa  ChipRate  BF-CMratio  BlowFlow  ChipLevel4  \
1     31-01:00    27.60    16.810      79.022  1328.360     341.327
12    31-11:00    26.62    15.467      84.447  1334.255     386.971
13    31-12:00    27.20    16.083      82.839  1332.331     366.855
15    31-14:00    25.40    16.425      72.924  1197.775     118.821
40     1-15:00    27.10    13.558      83.117  1175.417     289.256

    T-upperExt-2  T-lowerExt-2  UCZAA  WhiteFlow-4  ...  SteamFlow-4  \
1        351.050       329.067  1.549      537.201  ...       60.012
12       349.392       321.021  1.428      531.250  ...       59.407
13       350.094       327.439  1.486      527.893  ...       60.271
15       350.765       329.799  1.635      585.011  ...       65.474
40       339.168       318.386  1.360      480.184  ...       48.568

    Lower-HeatT-3  Upper-HeatT-3  ChipMass-4  WeakLiquorF  BlackFlow-2  \
1         330.823        304.879     163.202      665.975     1297.317
12        330.284        303.248     156.797      799.947     1299.782
13        330.023        302.883     160.562      771.158     1299.974
15        329.773        302.884     175.646      756.154     1300.037
40        318.228        294.850     131.537      744.659      996.046

    WeakWashF  SteamHeatF-3  T-Top-Chips-4  SulphidityL-4
1     241.182        46.603        251.406          29.11
12    118.901        46.597        251.721            NaN
13    153.647        47.175        251.767          30.18
15    401.418        54.628        251.009          30.41
40    118.899        41.985        253.450            NaN

[5 rows x 23 columns]

Summary Statistics:
          Y-Kappa    ChipRate  BF-CMratio     BlowFlow  ChipLevel4  \
count  324.000000  319.000000  307.000000   308.000000  323.000000
mean    20.635370   14.347937   87.464456  1237.837614  258.164483
std      3.070036    1.499095    7.995012   100.593735   87.987452
min     12.170000    9.983000   68.645000     0.000000    0.000000
25%     18.382500   13.358000   81.823000  1193.215250  213.527000
50%     20.845000   14.308000   86.739000  1273.138500  271.792000
75%     23.032500   15.517000   92.372000  1289.196000  321.680000
max     27.600000   16.958000  121.717000  1351.240000  419.014000

       T-upperExt-2  T-lowerExt-2       UCZAA  WhiteFlow-4  AAWhiteSt-4  ...
\
count    322.000000    322.000000  299.000000   323.000000   173.000000  ...
mean     356.904295    324.020180    1.492010   591.732260     6.140410  ...
std        9.209290      7.621402    0.105923    67.016351     0.081609  ...
min      339.168000    284.633000    1.182000   405.111000     5.890000  ...
25%      350.241250    321.420000    1.431500   540.989500     6.089000  ...
50%      356.843000    325.669000    1.498000   592.895000     6.135000  ...
75%      362.242250    329.175000    1.560500   639.480500     6.199000  ...
max      399.135000    337.012000    1.747000   731.394000     6.340000  ...

       SteamFlow-4  Lower-HeatT-3  Upper-HeatT-3  ChipMass-4  WeakLiquorF  \
count   323.000000     322.000000     322.000000  323.000000   323.000000
mean     66.668285     325.567820     300.525699  162.222322   873.828941
std       5.708587       4.609862       4.568484   14.160688   122.073521
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```
min      48.568000     318.051000     293.312000  113.922000   486.938000
25%      62.518000     321.385500     296.513250  153.032500   792.019500
50%      67.429000     324.741000     299.126000  163.690000   865.254000
75%      71.522000     329.845250     304.244750  172.555000   965.286500
max      76.147000     333.854000     311.146000  189.268000  1226.277000

       BlackFlow-2   WeakWashF  SteamHeatF-3  T-Top-Chips-4  SulphidityL-4
count   322.000000  323.000000    322.000000     323.000000     324.000000
mean   1175.917016  263.543068     49.696907     251.240087      30.411671
std     149.334010  163.666942      4.551909       1.283432       0.511773
min     838.948000    0.000000     35.510000     248.359000      29.010000
25%    1044.817500  134.649000     46.389750     250.312000      30.340000
50%    1150.221500  269.193000     50.277000     251.380000      30.411671
75%    1319.021250  405.563000     53.294250     252.323500      30.411671
max    1395.767000  715.715000     63.332000     254.122000      32.840000

[8 rows x 22 columns]
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In [ ]:
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1
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