tratamento-de-dados2

June 7, 2022

1 Definição do framework

```python
from CoolProp.CoolProp import PropsSI
import numpy as np
import matplotlib.pyplot as plt
import pandas as pd
from CoolProp.Plots import PropertyPlot


class Experimento:

    # definindo funções de conversão
    @classmethod
    def celcius_to_kelvin(cls, T):
        return T + 273.15

    @classmethod
    def psi_to_pascal(cls, P, manometro=True):
        if manometro:
            return P * 6894 + 101325
        return P * 6894

    @classmethod
    def bar_to_pascal(cls, P, manometro=True):
        if manometro:
            return P * 100000 + 101325
        return P * 100000

    @classmethod
    def vasao(cls, prop1, prop2, Q):
        rho = PropsSI(
            "D", prop1["name"], prop1["value"], prop2["name"], prop2["value"],
    "R134a"
        )
        return Q * 1e-3 * rho

    def __init__(self, Temp_dict, Press_dict, I, Q, cool=True, correcao=False):
```

```python
        # passando valores de temperatura
        self.Ts1 = self.celcius_to_kelvin(Temp_dict["Ts1"])
        self.Ts2 = self.celcius_to_kelvin(Temp_dict["Ts2"])
        self.Ts3 = self.celcius_to_kelvin(Temp_dict["Ts3"])
        self.Ts4 = self.celcius_to_kelvin(Temp_dict["Ts4"])

        # passando valores de pressão
        self.Ps1 = self.bar_to_pascal(Press_dict["Ps1"])
        self.Ps2 = self.bar_to_pascal(Press_dict["Ps2"])
        self.Ps3 = self.bar_to_pascal(Press_dict["Ps3"])

        # passando demais valores
        self.cool = cool
        self.I = I
        self.Q = Q

        # determinando entalpias
        if cool:
            self.Hs1 = PropsSI("H", "P", self.Ps1, "T", self.Ts1, "R134a")
            self.Hs2 = PropsSI("H", "P", self.Ps2, "T", self.Ts2, "R134a")
            self.Hs3 = PropsSI("H", "P", self.Ps3, "T", self.Ts3, "R134a")
            self.Hs4 = self.Hs3

            if correcao:
                self.Ps4 = self.Ps1

            else:
                self.Ps4 = self.bar_to_pascal(Press_dict["Ps4"])

            input_array = np.array(
                (
                    [self.Ts1, self.Ps1, self.Hs1, 1],
                    [self.Ts2, self.Ps2, self.Hs2, 2],
                    [self.Ts3, self.Ps3, self.Hs3, 3],
                    [self.Ts4, self.Ps4, self.Hs4, 4],
                )
            )

            self.input_df = pd.DataFrame(
                input_array,
                columns=["Temperatura", "Pressao", "Entalpia", "Ponto no␣
↪bancada"],
            )

        else:
            self.Hs2 = PropsSI("H", "P", self.Ps2, "T", self.Ts2, "R134a")
            self.Hs1 = PropsSI("H", "P", self.Ps1, "T", self.Ts1, "R134a")
```

```python
            self.Hs4 = PropsSI("H", "P", self.Ps4, "T", self.Ts4, "R134a")
            self.Hs3 = self.Hs4

            if correcao:
                self.Ps4 = self.Ps1

            else:
                self.Ps4 = self.bar_to_pascal(Press_dict["Ps4"])

            input_array = np.array(
                (
                    [self.Ts2, self.Ps2, self.Hs2, 2],
                    [self.Ts1, self.Ps1, self.Hs1, 1],
                    [self.Ts4, self.Ps4, self.Hs4, 4],
                    [self.Ts3, self.Ps3, self.Hs3, 3],
                )
            )

            self.input_df = pd.DataFrame(
                input_array,
                columns=["Temperatura", "Pressao", "Entalpia", "Ponto na␣
 ↪bancada"],
            )

    def variacoes(self):

        if self.cool:
            self.delta_T_eva = self.Ts1 - self.Ts4
            self.delta_T_cond = self.Ts3 - self.Ts2

            self.delta_P_eva = self.Ps1 - self.Ps4
            self.delta_P_cond = self.Ps3 - self.Ps2

        else:
            self.delta_T_eva = self.Ts2 - self.Ts3
            self.delta_T_cond = self.Ts4 - self.Ts1

            self.delta_P_eva = self.Ps2 - self.Ps3
            self.delta_P_cond = self.Ps4 - self.Ps1

    def calc_COP(self):

        if self.cool:
            self.COP = (self.Hs1 - self.Hs4) / (self.Hs2 - self.Hs1)

        else:
            self.COP = (self.Hs4 - self.Hs1) / (self.Hs1 - self.Hs2)
```

```python
    def calc_ef_isentropica(self):
        self.Ss1 = PropsSI('S','T', self.Ts1, 'P', self.Ps1,"R134a")
        self.Hs2s = PropsSI('H','S',self.Ss1,'P',self.Ps2,"R134a")

        self.ef_isentropica = (self.Hs2-self.Hs1)/(self.Hs2s-self.Hs1)

    def calc_trab_compressao(self):
        self.trab_compressao = self.dot_m * (self.Hs2-self.Hs1)

    def calc_potencia_compressor(self):
        self.pot_comp = self.I * 127

    def analise_defaut(self):

        self.variacoes()

        self.calc_COP()

        self.calc_ef_isentropica()

        self.calc_potencia_compressor()

        if self.cool:

            prop1 = {"name": "T", "value": self.Ts3}

            prop2 = {"name": "P", "value": self.Ps3}

            self.dot_m = self.vasao(prop1, prop2, self.Q)

            output_array = np.array(
                (
                    [
                        self.delta_T_eva,
                        self.delta_T_cond,
                        self.delta_P_eva,
                        self.delta_P_cond,
                        self.COP,
                        self.dot_m,
                        self.ef_isentropica,
                        self.pot_comp,
                    ]
                )
            )

            self.output_df = pd.DataFrame(
```

```python
                    output_array.reshape(1, len(output_array)),
                    columns=[
                        "delta_T_eva",
                        "delta_T_cond",
                        "delta_P_eva",
                        "delta_P_cond",
                        "COP",
                        "dot_m",
                        'ef_isentropica',
                        'pot_comp',
                    ],
                )

            else:
                output_array = np.array(
                    (
                        [
                            self.delta_T_eva,
                            self.delta_T_cond,
                            self.delta_P_eva,
                            self.delta_P_cond,
                            self.COP,
                            self.ef_isentropica,
                            self.pot_comp,
                        ]
                    )
                )

                self.output_df = pd.DataFrame(
                    output_array.reshape(1, len(output_array)),
                    columns=[
                        "delta_T_eva",
                        "delta_T_cond",
                        "delta_P_eva",
                        "delta_P_cond",
                        "COP",
                        "ef_isentropica",
                        "pot_comp",
                    ],
                )

    def plot_diagrama_ph(self):
        ph_plot = PropertyPlot("R134a", "Ph")
        ph_plot.calc_isolines()
        fig = ph_plot.figure
        fig.set_size_inches(16, 9)
        ax = ph_plot.axis
```

```python
# definindo listas para fechar o ciclo
plot_entalpia = self.input_df.Entalpia.to_list()
plot_pressao = self.input_df.Pressao.to_list()

plot_entalpia.append(self.input_df.Entalpia[0])
plot_pressao.append(self.input_df.Pressao[0])

plot_entalpia = [h / 10 ** 3 for h in plot_entalpia]
plot_pressao = [h / 10 ** 3 for h in plot_pressao]

ax.plot(
    plot_entalpia,
    plot_pressao,
    "o",
    plot_entalpia,
    plot_pressao,
    "-",
    color="b",
)

# anotando os pontos no diagrama

if self.cool:
    ax.annotate(
        "S1",
        (
            self.input_df.Entalpia[0] / 1e3 + 5,
            self.input_df.Pressao[0] / 1e3 + 5,
        ),
    )
    ax.annotate(
        "S2",
        (
            self.input_df.Entalpia[1] / 1e3 + 5,
            self.input_df.Pressao[1] / 1e3 + 5,
        ),
    )
    ax.annotate(
        "S3",
        (
            self.input_df.Entalpia[2] / 1e3 + 5,
            self.input_df.Pressao[2] / 1e3 + 5,
        ),
    )
    ax.annotate(
        "S4",
```

```python
                    (
                        self.input_df.Entalpia[3] / 1e3 + 5,
                        self.input_df.Pressao[3] / 1e3 + 5,
                    ),
                )
            ph_plot.show()

        else:
            ax.annotate(
                "S2",
                (
                    self.input_df.Entalpia[0] / 1e3 + 5,
                    self.input_df.Pressao[0] / 1e3 + 5,
                ),
            )
            ax.annotate(
                "S1",
                (
                    self.input_df.Entalpia[1] / 1e3 + 5,
                    self.input_df.Pressao[1] / 1e3 + 5,
                ),
            )
            ax.annotate(
                "S4",
                (
                    self.input_df.Entalpia[2] / 1e3 + 5,
                    self.input_df.Pressao[2] / 1e3 + 5,
                ),
            )
            ax.annotate(
                "S3",
                (
                    self.input_df.Entalpia[3] / 1e3 + 5,
                    self.input_df.Pressao[3] / 1e3 + 5,
                ),
            )
            ph_plot.show()

    def plot_P_saida_crompressor_vs_COP(self,min,max):
        if self.cool:
            P_list = np.linspace(min,max,250)
            original_Hs2 = self.Hs2
            S_ref = PropsSI('S','T',self.Ts2,'P',self.Ps2,"R134a")
            results_list = []
            for P in P_list:
                Ts2 = PropsSI('T','S',S_ref,'P',P,"R134a")
                self.Hs2 = PropsSI('H','T',Ts2,'P',P,"R134a")
```

```python
            self.calc_COP()

            results_list.append(self.COP)

        # retornando valores originais

        self.Hs2 = original_Hs2
        self.calc_COP()

        # plotando resultados
        fig = plt.figure(figsize=[16, 9])

        # Plotando 2D

        ax = fig.add_subplot(1, 1, 1)

        ax.set_xlabel('$Ps2~[Pa]$',fontsize=16)
        ax.set_ylabel("$COP$",fontsize=16)

        ax.plot(P_list, results_list, 'r', linewidth=2)

        ax.grid()

        plt.show()

    else:
        print('not implemented')
    return

def plot_P_saida_crompressor_vs_trab_compressao(self,min,max):
    if self.cool:
        P_list = np.linspace(min,max,250)
        original_Hs2 = self.Hs2
        S_ref = PropsSI('S','T',self.Ts2,'P',self.Ps2,"R134a")
        results_list = []
        for P in P_list:
            Ts2 = PropsSI('T','S',S_ref,'P',P,"R134a")
            self.Hs2 = PropsSI('H','T',Ts2,'P',P,"R134a")

            self.calc_trab_compressao()

            results_list.append(self.trab_compressao)

        # retornando valores originais

        self.Hs2 = original_Hs2
```

```python
            self.calc_trab_compressao()

            # plotando resultados
            fig = plt.figure(figsize=[16, 9])

            # Plotando 2D

            ax = fig.add_subplot(1, 1, 1)

            ax.set_xlabel('$Ps2~[Pa]$',fontsize=16)
            ax.set_ylabel("$W_{comp}~[J/s]$",fontsize=16)

            ax.plot(P_list, results_list, 'r', linewidth=2)

            ax.grid()

            plt.show()

        else:
            print('not implemented')
        return

    def plot_P_saida_crompressor_vs_ef_isentropica(self,min,max):
        if self.cool:
            P_list = np.linspace(min,max,250)
            original_Hs2 = self.Hs2
            S_ref = PropsSI('S','T',self.Ts2,'P',self.Ps2,"R134a")
            results_list = []
            for P in P_list:
                Ts2 = PropsSI('T','S',S_ref,'P',P,"R134a")
                self.Hs2 = PropsSI('H','T',Ts2,'P',P,"R134a")

                self.calc_ef_isentropica()

                results_list.append(self.ef_isentropica)

            # retornando valores originais

            self.Hs2 = original_Hs2
            self.calc_ef_isentropica()

            # plotando resultados
            fig = plt.figure(figsize=[16, 9])

            # Plotando 2D

            ax = fig.add_subplot(1, 1, 1)
```

```
            ax.set_xlabel('$Ps2(Pa)$',fontsize=16)
            ax.set_ylabel("$\eta$",fontsize=16)

            ax.plot(P_list, results_list, 'r', linewidth=2)

            ax.grid()

            plt.show()

        else:
            print('not implemented')
        return
```

2   Resultados sem correção

```
[ ]: # definicao de dados experimentais
     Temp1 = {
         'Ts1': 9,
         'Ts2': 54.5,
         'Ts3': 36,
         'Ts4': 9,
     }

     Press1 = {
         'Ps1': 2.5,
         'Ps2': 13.5,
         'Ps3': 12,
         'Ps4': 0.5,
     }

     I = 4.5

     Q = 35
```

```
[ ]: exp = Experimento(Temp1,Press1,I,Q)
     exp.input_df
```

```
[ ]:    Temperatura    Pressao      Entalpia  Ponto no bancada
     0        282.15    351325.0  405114.051615               1.0
     1        327.65   1451325.0  425584.692577               2.0
     2        309.15   1301325.0  250433.802577               3.0
     3        282.15    151325.0  250433.802577               4.0
```

```
[ ]: exp.analise_defaut()
     exp.output_df
```

```
[ ]:    delta_T_eva  delta_T_cond  delta_P_eva  delta_P_cond     COP      dot_m  \
     0          0.0         -18.5     200000.0     -150000.0  7.5562  40.822913

        ef_isentropica  pot_comp
     0         0.67993     571.5
```

```
[ ]: exp.plot_diagrama_ph()
```

/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
8771670.263783, 2426.329225 with index (248,): unable to solve 1phase PY flash
with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [247.563 J/mol/K] is above the maximum value
of 247.390746622 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
9133000.049092, 2426.329225 with index (249,): unable to solve 1phase PY flash
with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [247.563 J/mol/K] is above the maximum value
of 246.954593629 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
1426198.569157, 2593.934527 with index (203,): unable to solve 1phase PY flash
with Tmin=326.333, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [264.664 J/mol/K] is above the maximum value
of 264.649485294 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
1484947.702139, 2593.934527 with index (204,): unable to solve 1phase PY flash
with Tmin=327.979, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [264.664 J/mol/K] is above the maximum value
of 264.296093179 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
1546116.877253, 2593.934527 with index (205,): unable to solve 1phase PY flash
with Tmin=329.641, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [264.664 J/mol/K] is above the maximum value
of 263.941973378 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-

packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs 1609805.782846, 2593.934527 with index (206,): unable to solve 1phase PY flash with Tmin=331.321, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could not find a solution because Smolar [264.664 J/mol/K] is above the maximum value of 263.587096372 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs 1676118.213707, 2593.934527 with index (207,): unable to solve 1phase PY flash with Tmin=333.017, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could not find a solution because Smolar [264.664 J/mol/K] is above the maximum value of 263.231431484 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs 1745162.240226, 2593.934527 with index (208,): unable to solve 1phase PY flash with Tmin=334.729, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could not find a solution because Smolar [264.664 J/mol/K] is above the maximum value of 262.874946834 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs 1817050.384517, 2593.934527 with index (209,): unable to solve 1phase PY flash with Tmin=336.459, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could not find a solution because Smolar [264.664 J/mol/K] is above the maximum value of 262.517609297 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs 1891899.803794, 2593.934527 with index (210,): unable to solve 1phase PY flash with Tmin=338.206, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could not find a solution because Smolar [264.664 J/mol/K] is above the maximum value of 262.159384466 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs 1969832.481308, 2593.934527 with index (211,): unable to solve 1phase PY flash with Tmin=339.97, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could not find a solution because Smolar [264.664 J/mol/K] is above the maximum value of 261.800236601 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs 2050975.425145, 2593.934527 with index (212,): unable to solve 1phase PY flash with Tmin=341.752, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could not find a solution because Smolar [264.664 J/mol/K] is above the maximum value of 261.440128595 J/mol/K
  warnings.warn(

```
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
2135460.875208, 2593.934527 with index (213,): unable to solve 1phase PY flash
with Tmin=343.55, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [264.664 J/mol/K] is above the maximum value
of 261.07902192 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
2223426.518737, 2593.934527 with index (214,): unable to solve 1phase PY flash
with Tmin=345.366, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [264.664 J/mol/K] is above the maximum value
of 260.71687659 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
2315015.714694, 2593.934527 with index (215,): unable to solve 1phase PY flash
with Tmin=347.198, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [264.664 J/mol/K] is above the maximum value
of 260.353651117 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
2410377.727404, 2593.934527 with index (216,): unable to solve 1phase PY flash
with Tmin=349.048, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [264.664 J/mol/K] is above the maximum value
of 259.989302463 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
2509667.969805, 2593.934527 with index (217,): unable to solve 1phase PY flash
with Tmin=350.915, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [264.664 J/mol/K] is above the maximum value
of 259.623786002 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
2613048.256735, 2593.934527 with index (218,): unable to solve 1phase PY flash
with Tmin=352.798, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [264.664 J/mol/K] is above the maximum value
of 259.257055475 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
2720687.068639, 2593.934527 with index (219,): unable to solve 1phase PY flash
with Tmin=354.698, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [264.664 J/mol/K] is above the maximum value
of 258.88906295 J/mol/K
```

```
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
2832759.826146, 2593.934527 with index (220,): unable to solve 1phase PY flash
with Tmin=356.615, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [264.664 J/mol/K] is above the maximum value
of 258.519758786 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
2949449.175955, 2593.934527 with index (221,): unable to solve 1phase PY flash
with Tmin=358.546, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [264.664 J/mol/K] is above the maximum value
of 258.149091592 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
3070945.288494, 2593.934527 with index (222,): unable to solve 1phase PY flash
with Tmin=360.493, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [264.664 J/mol/K] is above the maximum value
of 257.777008199 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
3197446.167850, 2593.934527 with index (223,): unable to solve 1phase PY flash
with Tmin=362.454, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [264.664 J/mol/K] is above the maximum value
of 257.403453628 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
3329157.974453, 2593.934527 with index (224,): unable to solve 1phase PY flash
with Tmin=364.429, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [264.664 J/mol/K] is above the maximum value
of 257.028371063 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
3466295.361061, 2593.934527 with index (225,): unable to solve 1phase PY flash
with Tmin=366.415, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [264.664 J/mol/K] is above the maximum value
of 256.651701836 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
3609081.822587, 2593.934527 with index (226,): unable to solve 1phase PY flash
with Tmin=368.41, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [264.664 J/mol/K] is above the maximum value
```

of 256.273385412 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
3757750.060323, 2593.934527 with index (227,): unable to solve 1phase PY flash
with Tmin=370.411, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [264.664 J/mol/K] is above the maximum value
of 255.893359386 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
3912542.361185, 2593.934527 with index (228,): unable to solve 1phase PY flash
with Tmin=372.411, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [264.664 J/mol/K] is above the maximum value
of 255.511559483 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
4073710.992571, 2593.934527 with index (229,): unable to solve 1phase PY flash
with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [264.664 J/mol/K] is above the maximum value
of 255.127919578 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
4241518.613479, 2593.934527 with index (230,): unable to solve 1phase PY flash
with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [264.664 J/mol/K] is above the maximum value
of 254.742371721 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
4416238.702573, 2593.934527 with index (231,): unable to solve 1phase PY flash
with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [264.664 J/mol/K] is above the maximum value
of 254.354846181 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
4598156.003873, 2593.934527 with index (232,): unable to solve 1phase PY flash
with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [264.664 J/mol/K] is above the maximum value
of 253.965271505 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
4787566.990804, 2593.934527 with index (233,): unable to solve 1phase PY flash
with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could

not find a solution because Smolar [264.664 J/mol/K] is above the maximum value
of 253.573574593 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
4984780.349368, 2593.934527 with index (234,): unable to solve 1phase PY flash
with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [264.664 J/mol/K] is above the maximum value
of 253.179680803 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
5190117.481213, 2593.934527 with index (235,): unable to solve 1phase PY flash
with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [264.664 J/mol/K] is above the maximum value
of 252.783514074 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
5403913.027422, 2593.934527 with index (236,): unable to solve 1phase PY flash
with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [264.664 J/mol/K] is above the maximum value
of 252.384997078 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
5626515.413890, 2593.934527 with index (237,): unable to solve 1phase PY flash
with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [264.664 J/mol/K] is above the maximum value
of 251.98405141 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
5858287.419153, 2593.934527 with index (238,): unable to solve 1phase PY flash
with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [264.664 J/mol/K] is above the maximum value
of 251.580597805 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
6099606.765615, 2593.934527 with index (239,): unable to solve 1phase PY flash
with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [264.664 J/mol/K] is above the maximum value
of 251.174556402 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
6350866.735132, 2593.934527 with index (240,): unable to solve 1phase PY flash

with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could not find a solution because Smolar [264.664 J/mol/K] is above the maximum value of 250.765847049 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs 6612476.809944, 2593.934527 with index (241,): unable to solve 1phase PY flash with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could not find a solution because Smolar [264.664 J/mol/K] is above the maximum value of 250.35438966 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs 6884863.340017, 2593.934527 with index (242,): unable to solve 1phase PY flash with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could not find a solution because Smolar [264.664 J/mol/K] is above the maximum value of 249.94010462 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs 7168470.237873, 2593.934527 with index (243,): unable to solve 1phase PY flash with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could not find a solution because Smolar [264.664 J/mol/K] is above the maximum value of 249.522913256 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs 7463759.702041, 2593.934527 with index (244,): unable to solve 1phase PY flash with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could not find a solution because Smolar [264.664 J/mol/K] is above the maximum value of 249.102738367 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs 7771212.970305, 2593.934527 with index (245,): unable to solve 1phase PY flash with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could not find a solution because Smolar [264.664 J/mol/K] is above the maximum value of 248.679504822 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs 8091331.103991, 2593.934527 with index (246,): unable to solve 1phase PY flash with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could not find a solution because Smolar [264.664 J/mol/K] is above the maximum value of 248.253140233 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs

8424635.804550, 2593.934527 with index (247,): unable to solve 1phase PY flash
with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [264.664 J/mol/K] is above the maximum value
of 247.823575697 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
8771670.263783, 2593.934527 with index (248,): unable to solve 1phase PY flash
with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [264.664 J/mol/K] is above the maximum value
of 247.390746622 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
9133000.049092, 2593.934527 with index (249,): unable to solve 1phase PY flash
with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [264.664 J/mol/K] is above the maximum value
of 246.954593629 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
197311.794353, 2761.539828 with index (154,): unable to solve 1phase PY flash
with Tmin=262.741, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 281.467583575 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
205439.622480, 2761.539828 with index (155,): unable to solve 1phase PY flash
with Tmin=263.764, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 281.129488256 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
213902.258723, 2761.539828 with index (156,): unable to solve 1phase PY flash
with Tmin=264.797, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 280.791291424 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
222713.494770, 2761.539828 with index (157,): unable to solve 1phase PY flash
with Tmin=265.839, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 280.452988902 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-

packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs 231887.690428, 2761.539828 with index (158,): unable to solve 1phase PY flash with Tmin=266.891, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could not find a solution because Smolar [281.765 J/mol/K] is above the maximum value of 280.114576339 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs 241439.797026, 2761.539828 with index (159,): unable to solve 1phase PY flash with Tmin=267.952, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could not find a solution because Smolar [281.765 J/mol/K] is above the maximum value of 279.776049206 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs 251385.381778, 2761.539828 with index (160,): unable to solve 1phase PY flash with Tmin=269.023, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could not find a solution because Smolar [281.765 J/mol/K] is above the maximum value of 279.437402788 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs 261740.653156, 2761.539828 with index (161,): unable to solve 1phase PY flash with Tmin=270.104, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could not find a solution because Smolar [281.765 J/mol/K] is above the maximum value of 279.098632175 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs 272522.487307, 2761.539828 with index (162,): unable to solve 1phase PY flash with Tmin=271.195, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could not find a solution because Smolar [281.765 J/mol/K] is above the maximum value of 278.759732256 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs 283748.455552, 2761.539828 with index (163,): unable to solve 1phase PY flash with Tmin=272.296, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could not find a solution because Smolar [281.765 J/mol/K] is above the maximum value of 278.42069771 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs 295436.853023, 2761.539828 with index (164,): unable to solve 1phase PY flash with Tmin=273.407, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could not find a solution because Smolar [281.765 J/mol/K] is above the maximum value of 278.081522998 J/mol/K
  warnings.warn(

```
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
307606.728481, 2761.539828 with index (165,): unable to solve 1phase PY flash
with Tmin=274.529, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 277.742202352 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
320277.915361, 2761.539828 with index (166,): unable to solve 1phase PY flash
with Tmin=275.661, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 277.402729768 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
333471.064091, 2761.539828 with index (167,): unable to solve 1phase PY flash
with Tmin=276.804, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 277.063098994 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
347207.675748, 2761.539828 with index (168,): unable to solve 1phase PY flash
with Tmin=277.958, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 276.723303524 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
361510.137099, 2761.539828 with index (169,): unable to solve 1phase PY flash
with Tmin=279.122, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 276.383336583 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
376401.757087, 2761.539828 with index (170,): unable to solve 1phase PY flash
with Tmin=280.298, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 276.043191118 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
391906.804813, 2761.539828 with index (171,): unable to solve 1phase PY flash
with Tmin=281.485, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 275.702859785 J/mol/K
```

```
      warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
408050.549092, 2761.539828 with index (172,): unable to solve 1phase PY flash
with Tmin=282.684, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 275.362334943 J/mol/K
      warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
424859.299634, 2761.539828 with index (173,): unable to solve 1phase PY flash
with Tmin=283.894, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 275.021608633 J/mol/K
      warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
442360.449918, 2761.539828 with index (174,): unable to solve 1phase PY flash
with Tmin=285.115, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 274.680672572 J/mol/K
      warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
460582.521837, 2761.539828 with index (175,): unable to solve 1phase PY flash
with Tmin=286.349, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 274.339518137 J/mol/K
      warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
479555.212183, 2761.539828 with index (176,): unable to solve 1phase PY flash
with Tmin=287.594, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 273.998136351 J/mol/K
      warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
499309.441041, 2761.539828 with index (177,): unable to solve 1phase PY flash
with Tmin=288.852, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 273.65651787 J/mol/K
      warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
519877.402183, 2761.539828 with index (178,): unable to solve 1phase PY flash
with Tmin=290.122, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
```

of 273.314652967 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
541292.615531, 2761.539828 with index (179,): unable to solve 1phase PY flash
with Tmin=291.404, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 272.972531517 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
563589.981789, 2761.539828 with index (180,): unable to solve 1phase PY flash
with Tmin=292.699, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 272.630142979 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
586805.839316, 2761.539828 with index (181,): unable to solve 1phase PY flash
with Tmin=294.007, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 272.287476383 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
610978.023354, 2761.539828 with index (182,): unable to solve 1phase PY flash
with Tmin=295.327, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 271.944520309 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
636145.927684, 2761.539828 with index (183,): unable to solve 1phase PY flash
with Tmin=296.661, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 271.601262871 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
662350.568825, 2761.539828 with index (184,): unable to solve 1phase PY flash
with Tmin=298.008, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 271.257691698 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
689634.652886, 2761.539828 with index (185,): unable to solve 1phase PY flash
with Tmin=299.368, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could

not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 270.913793912 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
718042.645159, 2761.539828 with index (186,): unable to solve 1phase PY flash
with Tmin=300.742, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 270.569556112 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
747620.842585, 2761.539828 with index (187,): unable to solve 1phase PY flash
with Tmin=302.13, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 270.22496435 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
778417.449208, 2761.539828 with index (188,): unable to solve 1phase PY flash
with Tmin=303.531, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 269.880004107 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
810482.654733, 2761.539828 with index (189,): unable to solve 1phase PY flash
with Tmin=304.947, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 269.534660278 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
843868.716318, 2761.539828 with index (190,): unable to solve 1phase PY flash
with Tmin=306.376, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 269.188917141 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
878630.043742, 2761.539828 with index (191,): unable to solve 1phase PY flash
with Tmin=307.821, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 268.842758333 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
914823.288076, 2761.539828 with index (192,): unable to solve 1phase PY flash

with Tmin=309.279, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 268.496166832 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
952507.434006, 2761.539828 with index (193,): unable to solve 1phase PY flash
with Tmin=310.753, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 268.149124922 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
991743.895967, 2761.539828 with index (194,): unable to solve 1phase PY flash
with Tmin=312.241, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 267.801614171 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
1032596.618223, 2761.539828 with index (195,): unable to solve 1phase PY flash
with Tmin=313.745, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 267.4536154 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
1075132.179086, 2761.539828 with index (196,): unable to solve 1phase PY flash
with Tmin=315.263, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 267.105108659 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
1119419.899414, 2761.539828 with index (197,): unable to solve 1phase PY flash
with Tmin=316.797, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 266.756073189 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
1165531.955586, 2761.539828 with index (198,): unable to solve 1phase PY flash
with Tmin=318.347, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 266.406487399 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs

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1213543.497130, 2761.539828 with index (199,): unable to solve 1phase PY flash
with Tmin=319.912, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 266.056328829 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
1263532.769195, 2761.539828 with index (200,): unable to solve 1phase PY flash
with Tmin=321.493, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 265.705574118 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
1315581.240067, 2761.539828 with index (201,): unable to solve 1phase PY flash
with Tmin=323.09, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 265.35419897 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
1369773.733940, 2761.539828 with index (202,): unable to solve 1phase PY flash
with Tmin=324.703, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 265.002178119 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
1426198.569157, 2761.539828 with index (203,): unable to solve 1phase PY flash
with Tmin=326.333, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 264.649485294 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
1484947.702139, 2761.539828 with index (204,): unable to solve 1phase PY flash
with Tmin=327.979, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 264.296093179 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
1546116.877253, 2761.539828 with index (205,): unable to solve 1phase PY flash
with Tmin=329.641, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 263.941973378 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
```

```
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
1609805.782846, 2761.539828 with index (206,): unable to solve 1phase PY flash
with Tmin=331.321, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 263.587096372 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
1676118.213707, 2761.539828 with index (207,): unable to solve 1phase PY flash
with Tmin=333.017, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 263.231431484 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
1745162.240226, 2761.539828 with index (208,): unable to solve 1phase PY flash
with Tmin=334.729, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 262.874946834 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
1817050.384517, 2761.539828 with index (209,): unable to solve 1phase PY flash
with Tmin=336.459, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 262.517609297 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
1891899.803794, 2761.539828 with index (210,): unable to solve 1phase PY flash
with Tmin=338.206, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 262.159384466 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
1969832.481308, 2761.539828 with index (211,): unable to solve 1phase PY flash
with Tmin=339.97, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 261.800236601 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
2050975.425145, 2761.539828 with index (212,): unable to solve 1phase PY flash
with Tmin=341.752, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 261.440128595 J/mol/K
  warnings.warn(
```

```
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
2135460.875208, 2761.539828 with index (213,): unable to solve 1phase PY flash
with Tmin=343.55, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 261.07902192 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
2223426.518737, 2761.539828 with index (214,): unable to solve 1phase PY flash
with Tmin=345.366, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 260.71687659 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
2315015.714694, 2761.539828 with index (215,): unable to solve 1phase PY flash
with Tmin=347.198, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 260.353651117 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
2410377.727404, 2761.539828 with index (216,): unable to solve 1phase PY flash
with Tmin=349.048, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 259.989302463 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
2509667.969805, 2761.539828 with index (217,): unable to solve 1phase PY flash
with Tmin=350.915, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 259.623786002 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
2613048.256735, 2761.539828 with index (218,): unable to solve 1phase PY flash
with Tmin=352.798, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 259.257055475 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
2720687.068639, 2761.539828 with index (219,): unable to solve 1phase PY flash
with Tmin=354.698, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 258.88906295 J/mol/K
```

```
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
2832759.826146, 2761.539828 with index (220,): unable to solve 1phase PY flash
with Tmin=356.615, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 258.519758786 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
2949449.175955, 2761.539828 with index (221,): unable to solve 1phase PY flash
with Tmin=358.546, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 258.149091592 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
3070945.288494, 2761.539828 with index (222,): unable to solve 1phase PY flash
with Tmin=360.493, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 257.777008199 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
3197446.167850, 2761.539828 with index (223,): unable to solve 1phase PY flash
with Tmin=362.454, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 257.403453628 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
3329157.974453, 2761.539828 with index (224,): unable to solve 1phase PY flash
with Tmin=364.429, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 257.028371063 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
3466295.361061, 2761.539828 with index (225,): unable to solve 1phase PY flash
with Tmin=366.415, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 256.651701836 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
3609081.822587, 2761.539828 with index (226,): unable to solve 1phase PY flash
with Tmin=368.41, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
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of 256.273385412 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
3757750.060323, 2761.539828 with index (227,): unable to solve 1phase PY flash
with Tmin=370.411, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 255.893359386 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
3912542.361185, 2761.539828 with index (228,): unable to solve 1phase PY flash
with Tmin=372.411, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 255.511559483 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
4073710.992571, 2761.539828 with index (229,): unable to solve 1phase PY flash
with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 255.127919578 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
4241518.613479, 2761.539828 with index (230,): unable to solve 1phase PY flash
with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 254.742371721 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
4416238.702573, 2761.539828 with index (231,): unable to solve 1phase PY flash
with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 254.354846181 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
4598156.003873, 2761.539828 with index (232,): unable to solve 1phase PY flash
with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 253.965271505 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
4787566.990804, 2761.539828 with index (233,): unable to solve 1phase PY flash
with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could

not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 253.573574593 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
4984780.349368, 2761.539828 with index (234,): unable to solve 1phase PY flash
with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 253.179680803 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
5190117.481213, 2761.539828 with index (235,): unable to solve 1phase PY flash
with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 252.783514074 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
5403913.027422, 2761.539828 with index (236,): unable to solve 1phase PY flash
with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 252.384997078 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
5626515.413890, 2761.539828 with index (237,): unable to solve 1phase PY flash
with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 251.98405141 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
5858287.419153, 2761.539828 with index (238,): unable to solve 1phase PY flash
with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 251.580597805 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
6099606.765615, 2761.539828 with index (239,): unable to solve 1phase PY flash
with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 251.174556402 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
6350866.735132, 2761.539828 with index (240,): unable to solve 1phase PY flash

with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could not find a solution because Smolar [281.765 J/mol/K] is above the maximum value of 250.765847049 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs 6612476.809944, 2761.539828 with index (241,): unable to solve 1phase PY flash with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could not find a solution because Smolar [281.765 J/mol/K] is above the maximum value of 250.35438966 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs 6884863.340017, 2761.539828 with index (242,): unable to solve 1phase PY flash with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could not find a solution because Smolar [281.765 J/mol/K] is above the maximum value of 249.94010462 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs 7168470.237873, 2761.539828 with index (243,): unable to solve 1phase PY flash with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could not find a solution because Smolar [281.765 J/mol/K] is above the maximum value of 249.522913256 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs 7463759.702041, 2761.539828 with index (244,): unable to solve 1phase PY flash with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could not find a solution because Smolar [281.765 J/mol/K] is above the maximum value of 249.102738367 J/mol/K
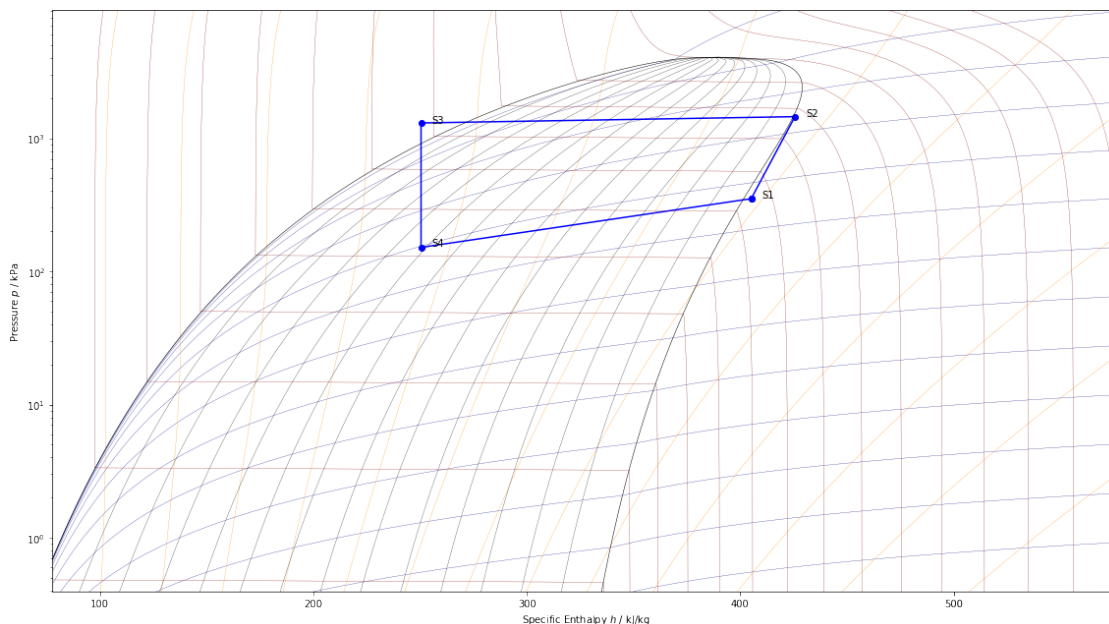 warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs 7771212.970305, 2761.539828 with index (245,): unable to solve 1phase PY flash with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could not find a solution because Smolar [281.765 J/mol/K] is above the maximum value of 248.679504822 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs 8091331.103991, 2761.539828 with index (246,): unable to solve 1phase PY flash with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could not find a solution because Smolar [281.765 J/mol/K] is above the maximum value of 248.253140233 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs

8424635.804550, 2761.539828 with index (247,): unable to solve 1phase PY flash
with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 247.823575697 J/mol/K
    warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
8771670.263783, 2761.539828 with index (248,): unable to solve 1phase PY flash
with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 247.390746622 J/mol/K
    warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
9133000.049092, 2761.539828 with index (249,): unable to solve 1phase PY flash
with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 246.954593629 J/mol/K
    warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:608: UserWarning: Please use "calc_sat_range"
to calculate saturation and isoquality lines. Input ranges are discarded.
    warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Plots.py:217: UserWarning: Detected an incomplete phase
envelope, fixing it numerically.
    warnings.warn("Detected an incomplete phase envelope, fixing it numerically.")

3 Resultados com correção

```
[ ]: exp2 = Experimento(Temp1,Press1,I,Q,correcao=True)
     exp2.input_df
```

```
[ ]:    Temperatura      Pressao       Entalpia  Ponto no bancada
     0       282.15    351325.0  405114.051615               1.0
     1       327.65   1451325.0  425584.692577               2.0
     2       309.15   1301325.0  250433.802577               3.0
     3       282.15    351325.0  250433.802577               4.0
```

```
[ ]: exp2.analise_defaut()
     exp2.output_df
```

```
[ ]:    delta_T_eva  delta_T_cond  delta_P_eva  delta_P_cond     COP      dot_m  \
     0          0.0         -18.5          0.0    -150000.0  7.5562  40.822913

        ef_isentropica  pot_comp
     0         0.67993     571.5
```

```
[ ]: exp2.plot_diagrama_ph()
```

/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
8771670.263783, 2426.329225 with index (248,): unable to solve 1phase PY flash
with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [247.563 J/mol/K] is above the maximum value
of 247.390746622 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
9133000.049092, 2426.329225 with index (249,): unable to solve 1phase PY flash
with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [247.563 J/mol/K] is above the maximum value
of 246.954593629 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
1426198.569157, 2593.934527 with index (203,): unable to solve 1phase PY flash
with Tmin=326.333, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [264.664 J/mol/K] is above the maximum value
of 264.649485294 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
1484947.702139, 2593.934527 with index (204,): unable to solve 1phase PY flash
with Tmin=327.979, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could

not find a solution because Smolar [264.664 J/mol/K] is above the maximum value
of 264.296093179 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
1546116.877253, 2593.934527 with index (205,): unable to solve 1phase PY flash
with Tmin=329.641, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [264.664 J/mol/K] is above the maximum value
of 263.941973378 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
1609805.782846, 2593.934527 with index (206,): unable to solve 1phase PY flash
with Tmin=331.321, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [264.664 J/mol/K] is above the maximum value
of 263.587096372 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
1676118.213707, 2593.934527 with index (207,): unable to solve 1phase PY flash
with Tmin=333.017, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [264.664 J/mol/K] is above the maximum value
of 263.231431484 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
1745162.240226, 2593.934527 with index (208,): unable to solve 1phase PY flash
with Tmin=334.729, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [264.664 J/mol/K] is above the maximum value
of 262.874946834 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
1817050.384517, 2593.934527 with index (209,): unable to solve 1phase PY flash
with Tmin=336.459, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [264.664 J/mol/K] is above the maximum value
of 262.517609297 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
1891899.803794, 2593.934527 with index (210,): unable to solve 1phase PY flash
with Tmin=338.206, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [264.664 J/mol/K] is above the maximum value
of 262.159384466 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
1969832.481308, 2593.934527 with index (211,): unable to solve 1phase PY flash

with Tmin=339.97, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [264.664 J/mol/K] is above the maximum value
of 261.800236601 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
2050975.425145, 2593.934527 with index (212,): unable to solve 1phase PY flash
with Tmin=341.752, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [264.664 J/mol/K] is above the maximum value
of 261.440128595 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
2135460.875208, 2593.934527 with index (213,): unable to solve 1phase PY flash
with Tmin=343.55, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [264.664 J/mol/K] is above the maximum value
of 261.07902192 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
2223426.518737, 2593.934527 with index (214,): unable to solve 1phase PY flash
with Tmin=345.366, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [264.664 J/mol/K] is above the maximum value
of 260.71687659 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
2315015.714694, 2593.934527 with index (215,): unable to solve 1phase PY flash
with Tmin=347.198, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [264.664 J/mol/K] is above the maximum value
of 260.353651117 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
2410377.727404, 2593.934527 with index (216,): unable to solve 1phase PY flash
with Tmin=349.048, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [264.664 J/mol/K] is above the maximum value
of 259.989302463 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
2509667.969805, 2593.934527 with index (217,): unable to solve 1phase PY flash
with Tmin=350.915, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [264.664 J/mol/K] is above the maximum value
of 259.623786002 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs

2613048.256735, 2593.934527 with index (218,): unable to solve 1phase PY flash
with Tmin=352.798, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [264.664 J/mol/K] is above the maximum value
of 259.257055475 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
2720687.068639, 2593.934527 with index (219,): unable to solve 1phase PY flash
with Tmin=354.698, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [264.664 J/mol/K] is above the maximum value
of 258.88906295 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
2832759.826146, 2593.934527 with index (220,): unable to solve 1phase PY flash
with Tmin=356.615, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [264.664 J/mol/K] is above the maximum value
of 258.519758786 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
2949449.175955, 2593.934527 with index (221,): unable to solve 1phase PY flash
with Tmin=358.546, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [264.664 J/mol/K] is above the maximum value
of 258.149091592 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
3070945.288494, 2593.934527 with index (222,): unable to solve 1phase PY flash
with Tmin=360.493, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [264.664 J/mol/K] is above the maximum value
of 257.777008199 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
3197446.167850, 2593.934527 with index (223,): unable to solve 1phase PY flash
with Tmin=362.454, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [264.664 J/mol/K] is above the maximum value
of 257.403453628 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
3329157.974453, 2593.934527 with index (224,): unable to solve 1phase PY flash
with Tmin=364.429, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [264.664 J/mol/K] is above the maximum value
of 257.028371063 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-

packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs 3466295.361061, 2593.934527 with index (225,): unable to solve 1phase PY flash with Tmin=366.415, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could not find a solution because Smolar [264.664 J/mol/K] is above the maximum value of 256.651701836 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs 3609081.822587, 2593.934527 with index (226,): unable to solve 1phase PY flash with Tmin=368.41, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could not find a solution because Smolar [264.664 J/mol/K] is above the maximum value of 256.273385412 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs 3757750.060323, 2593.934527 with index (227,): unable to solve 1phase PY flash with Tmin=370.411, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could not find a solution because Smolar [264.664 J/mol/K] is above the maximum value of 255.893359386 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs 3912542.361185, 2593.934527 with index (228,): unable to solve 1phase PY flash with Tmin=372.411, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could not find a solution because Smolar [264.664 J/mol/K] is above the maximum value of 255.511559483 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs 4073710.992571, 2593.934527 with index (229,): unable to solve 1phase PY flash with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could not find a solution because Smolar [264.664 J/mol/K] is above the maximum value of 255.127919578 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs 4241518.613479, 2593.934527 with index (230,): unable to solve 1phase PY flash with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could not find a solution because Smolar [264.664 J/mol/K] is above the maximum value of 254.742371721 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs 4416238.702573, 2593.934527 with index (231,): unable to solve 1phase PY flash with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could not find a solution because Smolar [264.664 J/mol/K] is above the maximum value of 254.354846181 J/mol/K
  warnings.warn(

/home/thiago/anaconda3/envs/default/lib/python3.9/site-packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs 4598156.003873, 2593.934527 with index (232,): unable to solve 1phase PY flash with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could not find a solution because Smolar [264.664 J/mol/K] is above the maximum value of 253.965271505 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs 4787566.990804, 2593.934527 with index (233,): unable to solve 1phase PY flash with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could not find a solution because Smolar [264.664 J/mol/K] is above the maximum value of 253.573574593 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs 4984780.349368, 2593.934527 with index (234,): unable to solve 1phase PY flash with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could not find a solution because Smolar [264.664 J/mol/K] is above the maximum value of 253.179680803 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs 5190117.481213, 2593.934527 with index (235,): unable to solve 1phase PY flash with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could not find a solution because Smolar [264.664 J/mol/K] is above the maximum value of 252.783514074 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs 5403913.027422, 2593.934527 with index (236,): unable to solve 1phase PY flash with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could not find a solution because Smolar [264.664 J/mol/K] is above the maximum value of 252.384997078 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs 5626515.413890, 2593.934527 with index (237,): unable to solve 1phase PY flash with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could not find a solution because Smolar [264.664 J/mol/K] is above the maximum value of 251.98405141 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs 5858287.419153, 2593.934527 with index (238,): unable to solve 1phase PY flash with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could not find a solution because Smolar [264.664 J/mol/K] is above the maximum value of 251.580597805 J/mol/K

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  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
6099606.765615, 2593.934527 with index (239,): unable to solve 1phase PY flash
with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [264.664 J/mol/K] is above the maximum value
of 251.174556402 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
6350866.735132, 2593.934527 with index (240,): unable to solve 1phase PY flash
with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [264.664 J/mol/K] is above the maximum value
of 250.765847049 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
6612476.809944, 2593.934527 with index (241,): unable to solve 1phase PY flash
with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [264.664 J/mol/K] is above the maximum value
of 250.35438966 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
6884863.340017, 2593.934527 with index (242,): unable to solve 1phase PY flash
with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [264.664 J/mol/K] is above the maximum value
of 249.94010462 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
7168470.237873, 2593.934527 with index (243,): unable to solve 1phase PY flash
with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [264.664 J/mol/K] is above the maximum value
of 249.522913256 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
7463759.702041, 2593.934527 with index (244,): unable to solve 1phase PY flash
with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [264.664 J/mol/K] is above the maximum value
of 249.102738367 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
7771212.970305, 2593.934527 with index (245,): unable to solve 1phase PY flash
with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [264.664 J/mol/K] is above the maximum value
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of 248.679504822 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
8091331.103991, 2593.934527 with index (246,): unable to solve 1phase PY flash
with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [264.664 J/mol/K] is above the maximum value
of 248.253140233 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
8424635.804550, 2593.934527 with index (247,): unable to solve 1phase PY flash
with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [264.664 J/mol/K] is above the maximum value
of 247.823575697 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
8771670.263783, 2593.934527 with index (248,): unable to solve 1phase PY flash
with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [264.664 J/mol/K] is above the maximum value
of 247.390746622 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
9133000.049092, 2593.934527 with index (249,): unable to solve 1phase PY flash
with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [264.664 J/mol/K] is above the maximum value
of 246.954593629 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
197311.794353, 2761.539828 with index (154,): unable to solve 1phase PY flash
with Tmin=262.741, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 281.467583575 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
205439.622480, 2761.539828 with index (155,): unable to solve 1phase PY flash
with Tmin=263.764, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 281.129488256 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
213902.258723, 2761.539828 with index (156,): unable to solve 1phase PY flash
with Tmin=264.797, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could

not find a solution because Smolar [281.765 J/mol/K] is above the maximum value of 280.791291424 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs 222713.494770, 2761.539828 with index (157,): unable to solve 1phase PY flash with Tmin=265.839, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could not find a solution because Smolar [281.765 J/mol/K] is above the maximum value of 280.452988902 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs 231887.690428, 2761.539828 with index (158,): unable to solve 1phase PY flash with Tmin=266.891, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could not find a solution because Smolar [281.765 J/mol/K] is above the maximum value of 280.114576339 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs 241439.797026, 2761.539828 with index (159,): unable to solve 1phase PY flash with Tmin=267.952, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could not find a solution because Smolar [281.765 J/mol/K] is above the maximum value of 279.776049206 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs 251385.381778, 2761.539828 with index (160,): unable to solve 1phase PY flash with Tmin=269.023, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could not find a solution because Smolar [281.765 J/mol/K] is above the maximum value of 279.437402788 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs 261740.653156, 2761.539828 with index (161,): unable to solve 1phase PY flash with Tmin=270.104, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could not find a solution because Smolar [281.765 J/mol/K] is above the maximum value of 279.098632175 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs 272522.487307, 2761.539828 with index (162,): unable to solve 1phase PY flash with Tmin=271.195, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could not find a solution because Smolar [281.765 J/mol/K] is above the maximum value of 278.759732256 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs 283748.455552, 2761.539828 with index (163,): unable to solve 1phase PY flash

with Tmin=272.296, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could not find a solution because Smolar [281.765 J/mol/K] is above the maximum value of 278.42069771 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs 295436.853023, 2761.539828 with index (164,): unable to solve 1phase PY flash with Tmin=273.407, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could not find a solution because Smolar [281.765 J/mol/K] is above the maximum value of 278.081522998 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs 307606.728481, 2761.539828 with index (165,): unable to solve 1phase PY flash with Tmin=274.529, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could not find a solution because Smolar [281.765 J/mol/K] is above the maximum value of 277.742202352 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs 320277.915361, 2761.539828 with index (166,): unable to solve 1phase PY flash with Tmin=275.661, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could not find a solution because Smolar [281.765 J/mol/K] is above the maximum value of 277.402729768 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs 333471.064091, 2761.539828 with index (167,): unable to solve 1phase PY flash with Tmin=276.804, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could not find a solution because Smolar [281.765 J/mol/K] is above the maximum value of 277.063098994 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs 347207.675748, 2761.539828 with index (168,): unable to solve 1phase PY flash with Tmin=277.958, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could not find a solution because Smolar [281.765 J/mol/K] is above the maximum value of 276.723303524 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs 361510.137099, 2761.539828 with index (169,): unable to solve 1phase PY flash with Tmin=279.122, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could not find a solution because Smolar [281.765 J/mol/K] is above the maximum value of 276.383336583 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs

376401.757087, 2761.539828 with index (170,): unable to solve 1phase PY flash
with Tmin=280.298, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 276.043191118 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
391906.804813, 2761.539828 with index (171,): unable to solve 1phase PY flash
with Tmin=281.485, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 275.702859785 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
408050.549092, 2761.539828 with index (172,): unable to solve 1phase PY flash
with Tmin=282.684, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 275.362334943 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
424859.299634, 2761.539828 with index (173,): unable to solve 1phase PY flash
with Tmin=283.894, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 275.021608633 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
442360.449918, 2761.539828 with index (174,): unable to solve 1phase PY flash
with Tmin=285.115, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 274.680672572 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
460582.521837, 2761.539828 with index (175,): unable to solve 1phase PY flash
with Tmin=286.349, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 274.339518137 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
479555.212183, 2761.539828 with index (176,): unable to solve 1phase PY flash
with Tmin=287.594, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 273.998136351 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-

packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs 499309.441041, 2761.539828 with index (177,): unable to solve 1phase PY flash with Tmin=288.852, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could not find a solution because Smolar [281.765 J/mol/K] is above the maximum value of 273.65651787 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs 519877.402183, 2761.539828 with index (178,): unable to solve 1phase PY flash with Tmin=290.122, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could not find a solution because Smolar [281.765 J/mol/K] is above the maximum value of 273.314652967 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs 541292.615531, 2761.539828 with index (179,): unable to solve 1phase PY flash with Tmin=291.404, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could not find a solution because Smolar [281.765 J/mol/K] is above the maximum value of 272.972531517 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs 563589.981789, 2761.539828 with index (180,): unable to solve 1phase PY flash with Tmin=292.699, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could not find a solution because Smolar [281.765 J/mol/K] is above the maximum value of 272.630142979 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs 586805.839316, 2761.539828 with index (181,): unable to solve 1phase PY flash with Tmin=294.007, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could not find a solution because Smolar [281.765 J/mol/K] is above the maximum value of 272.287476383 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs 610978.023354, 2761.539828 with index (182,): unable to solve 1phase PY flash with Tmin=295.327, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could not find a solution because Smolar [281.765 J/mol/K] is above the maximum value of 271.944520309 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs 636145.927684, 2761.539828 with index (183,): unable to solve 1phase PY flash with Tmin=296.661, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could not find a solution because Smolar [281.765 J/mol/K] is above the maximum value of 271.601262871 J/mol/K
  warnings.warn(

```
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
662350.568825, 2761.539828 with index (184,): unable to solve 1phase PY flash
with Tmin=298.008, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 271.257691698 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
689634.652886, 2761.539828 with index (185,): unable to solve 1phase PY flash
with Tmin=299.368, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 270.913793912 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
718042.645159, 2761.539828 with index (186,): unable to solve 1phase PY flash
with Tmin=300.742, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 270.569556112 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
747620.842585, 2761.539828 with index (187,): unable to solve 1phase PY flash
with Tmin=302.13, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 270.22496435 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
778417.449208, 2761.539828 with index (188,): unable to solve 1phase PY flash
with Tmin=303.531, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 269.880004107 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
810482.654733, 2761.539828 with index (189,): unable to solve 1phase PY flash
with Tmin=304.947, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 269.534660278 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
843868.716318, 2761.539828 with index (190,): unable to solve 1phase PY flash
with Tmin=306.376, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 269.188917141 J/mol/K
```

```
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
878630.043742, 2761.539828 with index (191,): unable to solve 1phase PY flash
with Tmin=307.821, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 268.842758333 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
914823.288076, 2761.539828 with index (192,): unable to solve 1phase PY flash
with Tmin=309.279, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 268.496166832 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
952507.434006, 2761.539828 with index (193,): unable to solve 1phase PY flash
with Tmin=310.753, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 268.149124922 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
991743.895967, 2761.539828 with index (194,): unable to solve 1phase PY flash
with Tmin=312.241, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 267.801614171 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
1032596.618223, 2761.539828 with index (195,): unable to solve 1phase PY flash
with Tmin=313.745, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 267.4536154 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
1075132.179086, 2761.539828 with index (196,): unable to solve 1phase PY flash
with Tmin=315.263, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 267.105108659 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
1119419.899414, 2761.539828 with index (197,): unable to solve 1phase PY flash
with Tmin=316.797, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
```

of 266.756073189 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
1165531.955586, 2761.539828 with index (198,): unable to solve 1phase PY flash
with Tmin=318.347, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 266.406487399 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
1213543.497130, 2761.539828 with index (199,): unable to solve 1phase PY flash
with Tmin=319.912, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 266.056328829 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
1263532.769195, 2761.539828 with index (200,): unable to solve 1phase PY flash
with Tmin=321.493, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 265.705574118 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
1315581.240067, 2761.539828 with index (201,): unable to solve 1phase PY flash
with Tmin=323.09, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 265.35419897 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
1369773.733940, 2761.539828 with index (202,): unable to solve 1phase PY flash
with Tmin=324.703, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 265.002178119 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
1426198.569157, 2761.539828 with index (203,): unable to solve 1phase PY flash
with Tmin=326.333, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 264.649485294 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
1484947.702139, 2761.539828 with index (204,): unable to solve 1phase PY flash
with Tmin=327.979, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could

not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 264.296093179 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
1546116.877253, 2761.539828 with index (205,): unable to solve 1phase PY flash
with Tmin=329.641, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 263.941973378 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
1609805.782846, 2761.539828 with index (206,): unable to solve 1phase PY flash
with Tmin=331.321, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 263.587096372 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
1676118.213707, 2761.539828 with index (207,): unable to solve 1phase PY flash
with Tmin=333.017, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 263.231431484 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
1745162.240226, 2761.539828 with index (208,): unable to solve 1phase PY flash
with Tmin=334.729, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 262.874946834 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
1817050.384517, 2761.539828 with index (209,): unable to solve 1phase PY flash
with Tmin=336.459, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 262.517609297 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
1891899.803794, 2761.539828 with index (210,): unable to solve 1phase PY flash
with Tmin=338.206, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 262.159384466 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
1969832.481308, 2761.539828 with index (211,): unable to solve 1phase PY flash

with Tmin=339.97, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 261.800236601 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
2050975.425145, 2761.539828 with index (212,): unable to solve 1phase PY flash
with Tmin=341.752, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 261.440128595 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
2135460.875208, 2761.539828 with index (213,): unable to solve 1phase PY flash
with Tmin=343.55, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 261.07902192 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
2223426.518737, 2761.539828 with index (214,): unable to solve 1phase PY flash
with Tmin=345.366, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 260.71687659 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
2315015.714694, 2761.539828 with index (215,): unable to solve 1phase PY flash
with Tmin=347.198, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 260.353651117 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
2410377.727404, 2761.539828 with index (216,): unable to solve 1phase PY flash
with Tmin=349.048, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 259.989302463 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
2509667.969805, 2761.539828 with index (217,): unable to solve 1phase PY flash
with Tmin=350.915, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 259.623786002 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs

2613048.256735, 2761.539828 with index (218,): unable to solve 1phase PY flash
with Tmin=352.798, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 259.257055475 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
2720687.068639, 2761.539828 with index (219,): unable to solve 1phase PY flash
with Tmin=354.698, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 258.88906295 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
2832759.826146, 2761.539828 with index (220,): unable to solve 1phase PY flash
with Tmin=356.615, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 258.519758786 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
2949449.175955, 2761.539828 with index (221,): unable to solve 1phase PY flash
with Tmin=358.546, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 258.149091592 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
3070945.288494, 2761.539828 with index (222,): unable to solve 1phase PY flash
with Tmin=360.493, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 257.777008199 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
3197446.167850, 2761.539828 with index (223,): unable to solve 1phase PY flash
with Tmin=362.454, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 257.403453628 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
3329157.974453, 2761.539828 with index (224,): unable to solve 1phase PY flash
with Tmin=364.429, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 257.028371063 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-

packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs 3466295.361061, 2761.539828 with index (225,): unable to solve 1phase PY flash with Tmin=366.415, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could not find a solution because Smolar [281.765 J/mol/K] is above the maximum value of 256.651701836 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs 3609081.822587, 2761.539828 with index (226,): unable to solve 1phase PY flash with Tmin=368.41, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could not find a solution because Smolar [281.765 J/mol/K] is above the maximum value of 256.273385412 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs 3757750.060323, 2761.539828 with index (227,): unable to solve 1phase PY flash with Tmin=370.411, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could not find a solution because Smolar [281.765 J/mol/K] is above the maximum value of 255.893359386 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs 3912542.361185, 2761.539828 with index (228,): unable to solve 1phase PY flash with Tmin=372.411, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could not find a solution because Smolar [281.765 J/mol/K] is above the maximum value of 255.511559483 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs 4073710.992571, 2761.539828 with index (229,): unable to solve 1phase PY flash with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could not find a solution because Smolar [281.765 J/mol/K] is above the maximum value of 255.127919578 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs 4241518.613479, 2761.539828 with index (230,): unable to solve 1phase PY flash with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could not find a solution because Smolar [281.765 J/mol/K] is above the maximum value of 254.742371721 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs 4416238.702573, 2761.539828 with index (231,): unable to solve 1phase PY flash with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could not find a solution because Smolar [281.765 J/mol/K] is above the maximum value of 254.354846181 J/mol/K
  warnings.warn(

/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
4598156.003873, 2761.539828 with index (232,): unable to solve 1phase PY flash
with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 253.965271505 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
4787566.990804, 2761.539828 with index (233,): unable to solve 1phase PY flash
with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 253.573574593 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
4984780.349368, 2761.539828 with index (234,): unable to solve 1phase PY flash
with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 253.179680803 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
5190117.481213, 2761.539828 with index (235,): unable to solve 1phase PY flash
with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 252.783514074 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
5403913.027422, 2761.539828 with index (236,): unable to solve 1phase PY flash
with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 252.384997078 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
5626515.413890, 2761.539828 with index (237,): unable to solve 1phase PY flash
with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
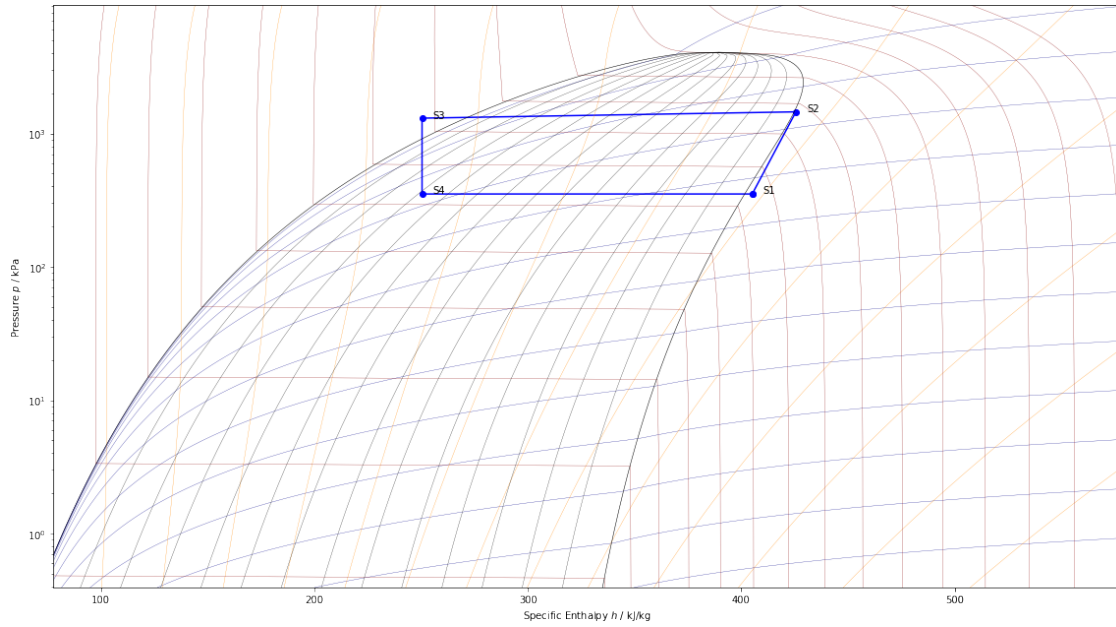of 251.98405141 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
5858287.419153, 2761.539828 with index (238,): unable to solve 1phase PY flash
with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 251.580597805 J/mol/K

```
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
6099606.765615, 2761.539828 with index (239,): unable to solve 1phase PY flash
with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 251.174556402 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
6350866.735132, 2761.539828 with index (240,): unable to solve 1phase PY flash
with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 250.765847049 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
6612476.809944, 2761.539828 with index (241,): unable to solve 1phase PY flash
with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 250.35438966 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
6884863.340017, 2761.539828 with index (242,): unable to solve 1phase PY flash
with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 249.94010462 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
7168470.237873, 2761.539828 with index (243,): unable to solve 1phase PY flash
with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 249.522913256 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
7463759.702041, 2761.539828 with index (244,): unable to solve 1phase PY flash
with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 249.102738367 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
7771212.970305, 2761.539828 with index (245,): unable to solve 1phase PY flash
with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
```

of 248.679504822 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
8091331.103991, 2761.539828 with index (246,): unable to solve 1phase PY flash
with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 248.253140233 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
8424635.804550, 2761.539828 with index (247,): unable to solve 1phase PY flash
with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 247.823575697 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
8771670.263783, 2761.539828 with index (248,): unable to solve 1phase PY flash
with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 247.390746622 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:655: UserWarning: An error occurred for inputs
9133000.049092, 2761.539828 with index (249,): unable to solve 1phase PY flash
with Tmin=169.849, Tmax=682.5 due to error: HSU_P_flash_singlephase_Brent could
not find a solution because Smolar [281.765 J/mol/K] is above the maximum value
of 246.954593629 J/mol/K
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Common.py:608: UserWarning: Please use "calc_sat_range"
to calculate saturation and isoquality lines. Input ranges are discarded.
  warnings.warn(
/home/thiago/anaconda3/envs/default/lib/python3.9/site-
packages/CoolProp/Plots/Plots.py:217: UserWarning: Detected an incomplete phase
envelope, fixing it numerically.
  warnings.warn("Detected an incomplete phase envelope, fixing it numerically.")
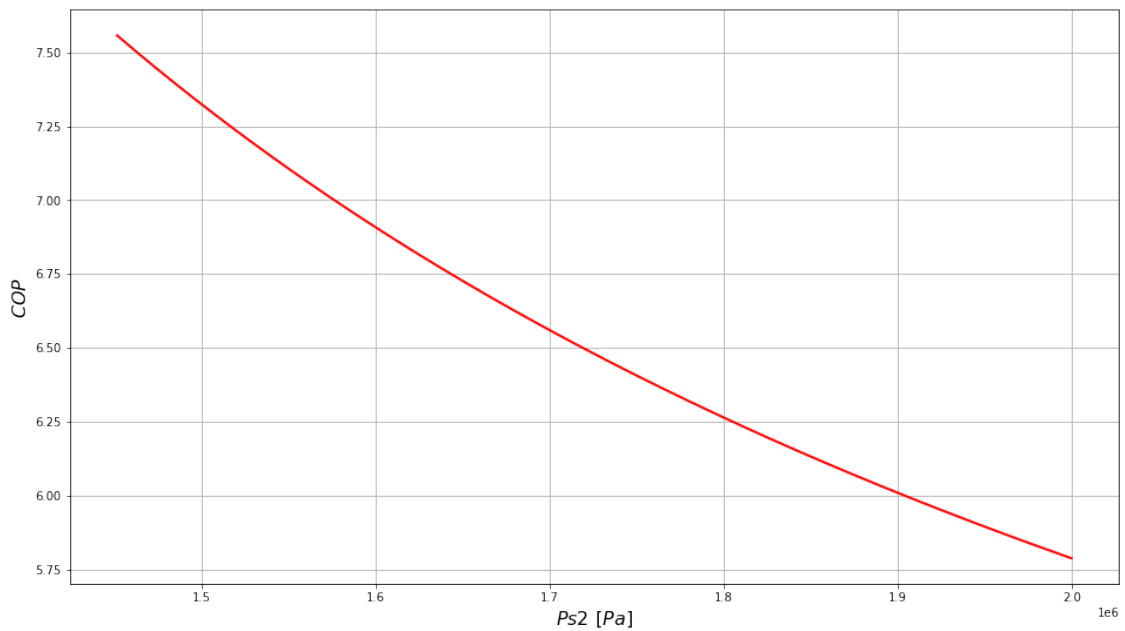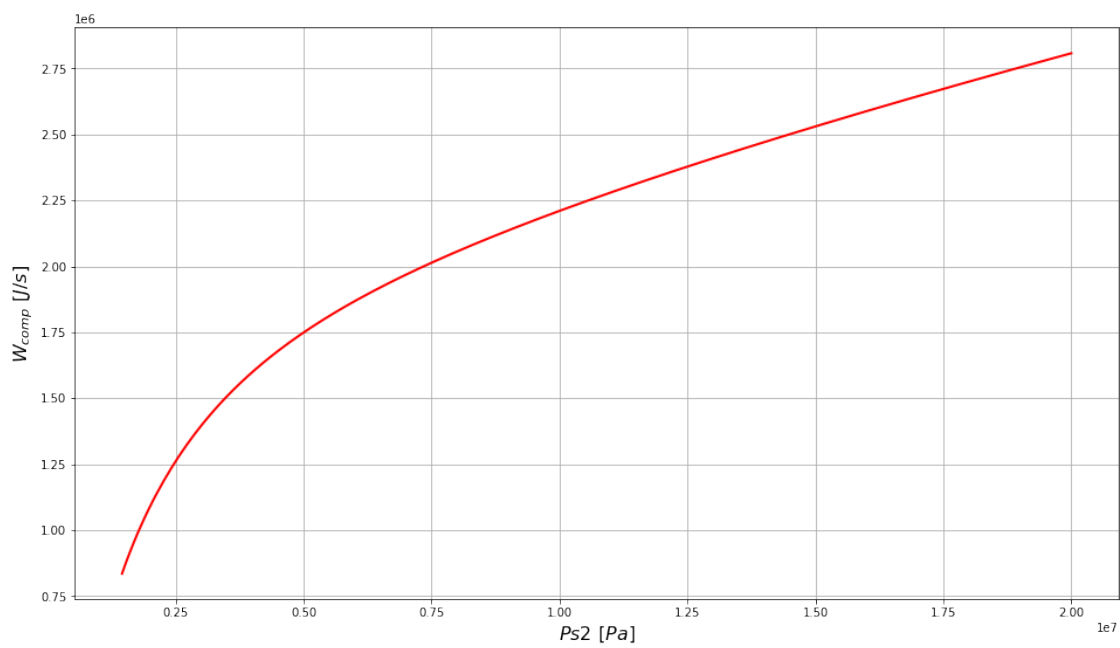
4 Análise Gráfica

4.1 P x COP

```
[ ]: exp2.plot_P_saida_crompressor_vs_COP(1451325.0,0.2e7)
```

```
[ ]: exp2.plot_P_saida_crompressor_vs_trab_compressao(1451325.0,0.2e8)
```



```
[ ]: exp2.plot_P_saida_crompressor_vs_ef_isentropica(1451325.0,0.23e7)
```