**Table 6.** Optimized parameters and corresponding costs for a pipe diameter of 50 mm.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Pipe Diameter  (mm) | Inlet concentration (mol/m3) | Optimization objective | Optimization results | | | | | |
| Length (mm) | Temperature (°C) | Velocity (m/s) | *P*  (CNY/h) | | *P'* (CNY/kg) |
|
| 50 | 0.02 | Minimizing *P* | 2100 | 128.9962 | 3.0115 | 11.0661 | - | |
| Minimizing *P'* | 2100 | 139.1558 | 4.8757 | - | 0.2611 | |
| 0.04 | Minimizing *P* | 2100 | 139.7202 | 3.2407 | 11.2358 | - | |
| Minimizing *P'* | 2100 | 148.4687 | 4.5680 | - | 0.2799 | |