TEMPERATURE CONTROL SYSTEM MANUAL

Version 2.1 - August 2024

SECTION 1: OVERVIEW

The temperature control system monitors and regulates process temperatures using RTD sensors and control valves. The system operates in the range of 15°C to 150°C with alarm setpoints configured for safe operation.

Normal Operating Range: 85°C to 110°C

High Alarm Setpoint: 115°C

High-High Alarm Setpoint: 125°C

Low Alarm Setpoint: 80°C

SECTION 2: ALARM RESPONSE PROCEDURES

When temperature alarms occur, follow these procedures:

HIGH TEMPERATURE ALARM (115°C):

1. Check cooling water flow rate

2. Verify control valve position

3. Inspect heat exchanger for fouling

4. Contact supervisor if alarm persists beyond 10 minutes

HIGH-HIGH TEMPERATURE ALARM (125°C):

1. Immediately reduce feed rate by 25%

2. Open emergency cooling bypass valve

3. Notify operations manager immediately

4. Prepare for emergency shutdown if temperature continues rising

TROUBLESHOOTING RISING TEMPERATURE TRENDS:

- Check cooling water supply temperature

- Verify catalyst activity and fouling status

- Inspect insulation for damage

- Review recent maintenance activities

SECTION 3: CALIBRATION PROCEDURES

Temperature sensors require monthly calibration checks:

1. Use certified RTD calibrator

2. Check readings at 25°C, 50°C, 75°C, 100°C

3. Record deviations in calibration log

4. Adjust if deviation exceeds ±1°C

5. Replace sensor if drift exceeds ±2°C

MAINTENANCE SCHEDULE:

- Weekly: Visual inspection of sensors and wiring

- Monthly: Calibration verification

- Quarterly: Thermowell inspection

- Annually: Complete sensor replacement