

# MONITORING OF HYDRAZINE AND OTHER OXYGEN SCAVENGERS IN BOILER WATER

**Measure hydrazine concentrations with confidence to avoid under or over dosing hydrazine to avoid dissolved oxygen corrosion risks and to minimize operating costs**

### Application description

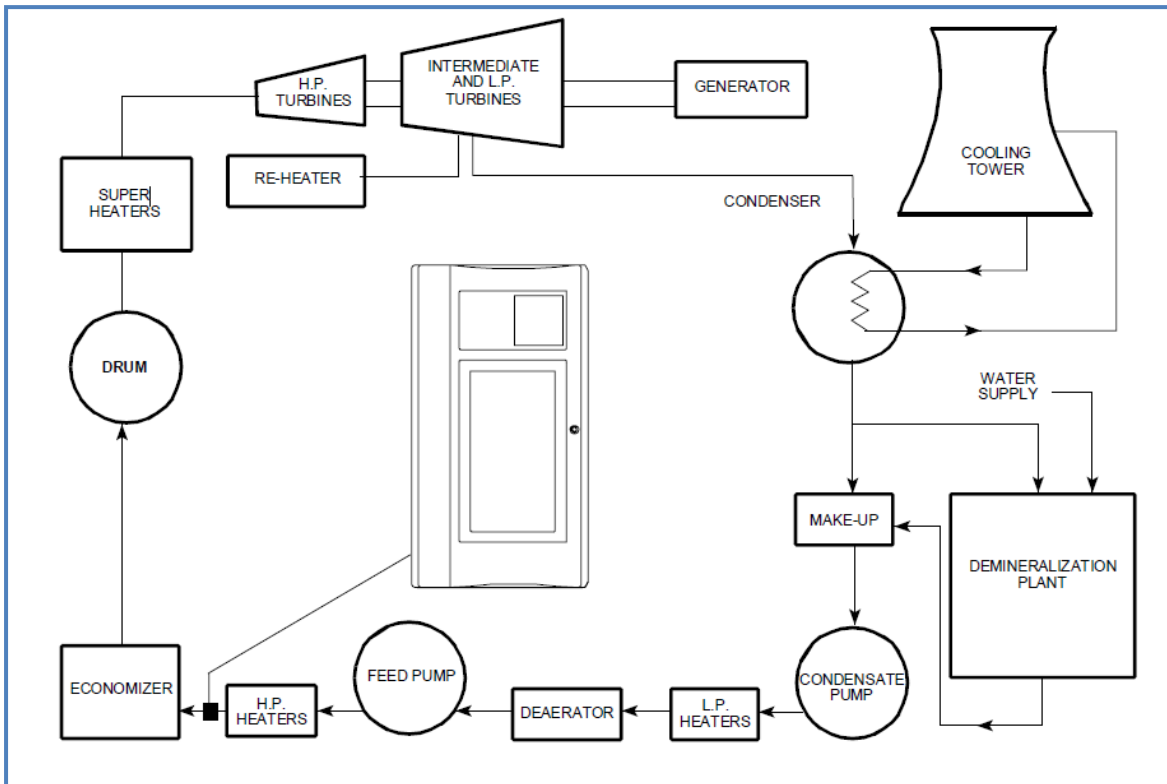
The main objective when adding hydrazine in the boiler feedwater is to prevent dissolved oxygen corrosion effects. Hydrazine holds a dual function in boiler water chemistry:

- Firstly, it eliminates dissolved oxygen (oxygen scavenger). The product of reaction between hydrazine and oxygen is nitrogen ( $\text{N}_2\text{H}_4 + \text{O}_2 \rightarrow \text{N}_2 + 2\text{H}_2\text{O}$ ) which has no negative effect on the boiler and turbine operation.
- Secondly, the residual hydrazine, once heated in the boiler decomposes to ammonia ( $3\text{N}_2\text{H}_4 \rightarrow \text{N}_2 + 4\text{NH}_3$ ) which is a chemical used in boiler water treatment.

Hydrazine is preferred to sodium sulphite when operating pressure is higher than 850 to 900 psig because sodium sulphite, at high temperature, decomposes to sulphur dioxide and hydrogen sulphide which are both highly corrosive.

The quantity of hydrazine to inject is either:

- Determined from the initial dissolved oxygen content at the deaerator outlet (before the hydrazine addition). Generally  $[\text{N}_2\text{H}_4] = \text{initial } [\text{DO}] \times 3$
- Fixed to obtain a minimum residual hydrazine concentration. Generally, residual  $[\text{DO}] + 7$  to  $10 \mu\text{g/l}$



Hydrazine monitoring enables power plant chemists to avoid under or overdosing hydrazine.

**Normal working range:** 0 to 20 ppb, or 0 to 200 ppb

### System configuration

The POLYMETRON 9186 HYDRASTAT, specially designed to monitor hydrazine at ppb levels, presents a very attractive feature set as standard:

- High sensitivity,
- Excellent measurement stability (3 electrode amperometry),
- Good response time,
- Simple hydraulic circuit design which simplifies maintenance operations.

Model	Description	
09186=A-XXXX	9186 HYDRASTAT	
	XXXX = 0000	Standard version
	XXXX = 0011	With RS485

**FOR TECHNICAL ASSISTANCE, PRICE INFORMATION AND ORDERING:**

Tel: 800-227-4224 | E-Mail: [techhelp@hach.com](mailto:techhelp@hach.com)

To locate the HACH office or distributor serving you, visit: [www.hach.com](http://www.hach.com)

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