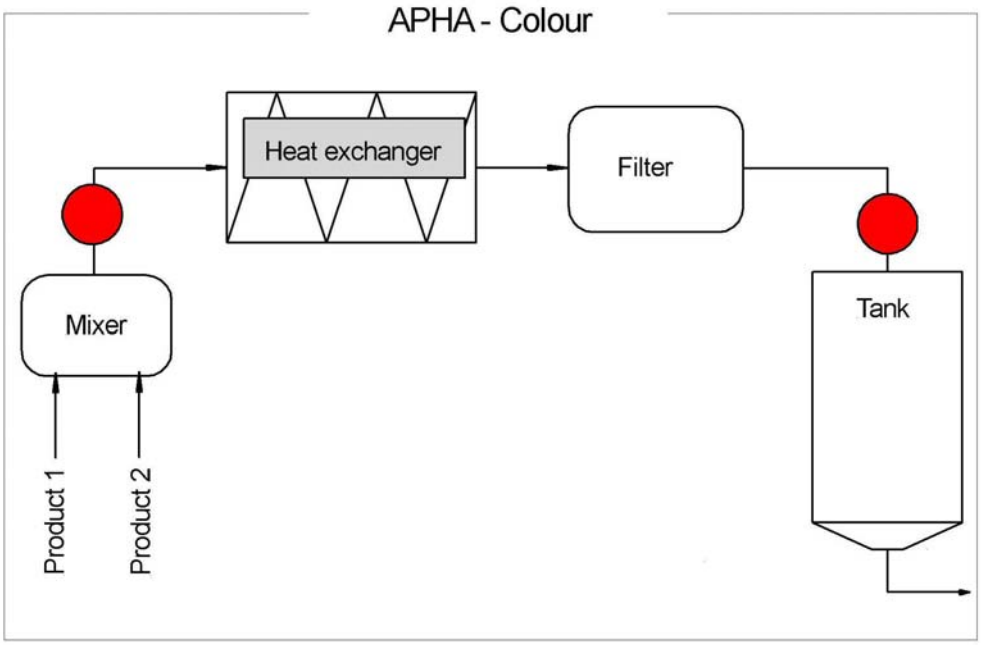
APHA Colour



Point of measurement

typical measurement ranges:

0-10 Hazen
0-20 Hazen
0-100 Hazen
0-500 Hazen

The American Public Health Association (APHA) compiled a summary of examination procedures for water, wastewater and chemical industry. The APHA- or platinum/cobalt colour is a known procedure for colour measurement in liquids. The measurement unit of the APHA colour is Hazen. A cobalt- platinum- solvent is used as calibration liquid according to ISO 6271. Therefore the range is specified sometimes in mg/l Pt instead of Hazen.
A change in colour is often a good indicator for the final product quality. Therefore it is very important to detect a change in colour immediately. The observation of mixing ratios, dilution factors, decolourisation filters and distillation columns are typical applications. A constant colour value helps to increase plant efficiency and product quality.

Typical applications for measuring the APHA- colour value:

- Observation of separation in comparative distillation processes
- Quality control of potable- or waste- water
- Quality control during cyanide production
- Iron removal in hydrochloric acid
- Monitoring of condensate to possible product leakage

The dual channel absorption measurement

This principle of measurement is perfectly suited to monitor the APHA- colour values.
The model MoniSpec-AD / Messenger operates according to this dual channel principle.
Each MoniSpec-AD Sensor is produced to customer specification, optimized for the requested application. Different optical path lengths (OPL), allow realizing the required measurement ranges. Interference factors such as coating of measurement windows, lamp aging, turbidity, etc. are compensated for by the single beam dual channel method. This will reduce maintenance and raise the long term stability of the measurement system.
The transmitter Model Messenger allows the operation of up to 2 sensors at the same time. The Messenger evaluates the absorption turbidity in addition to the colour values. Colour and turbidity can be monitored in parallel.

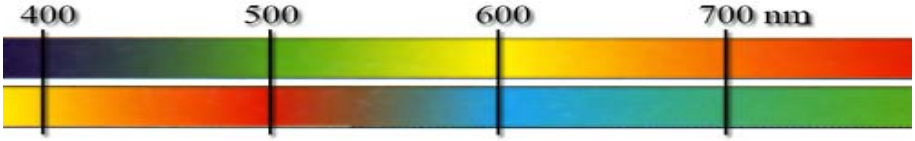
Chemtronic Waltemode GmbH, Sales & Service Partner for your MONITEK Products
40789 Monheim Niederstr. 14 Phone: +49-(0)2173-57007 Fax: +49-(0)2173-56007 E-mail: info@chemtronic-gmbh.de Internet: www.chemtronic-gmbh.de

Inline- Photometry

The Detection of Colour in liquid Products

The physical science considers light as electromagnetic waves. Colour is defined as a light released sense impression mediated by eye. Colour is not a clear defined magnitude like e.g. temperature or pressure, colour is a subjective impression. A colour impression will be caused, in case electromagnetic waves of the visible spectrum (wavelengths of about 380nm up to 750nm) will fall on the eye. White light (colourless) consists from the summation of all colours of the visible spectrum. A colour impression accrues for the eye, in case a specific range of wavelengths within the visible spectrum will be absorbed.

Comparison of absorbed Light Colour against Product Colour

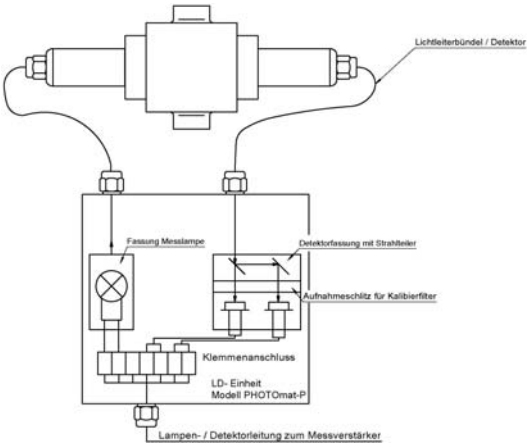


Light Colour
Product Colour

The sensor model **MoniSpec-AD** uses the principle of dual channel light absorption to detect colour in liquids. The measurement channel detects colour and turbidity, the reference channel detects turbidity only. The difference between measurement and reference channel ([colour + turbidity] – turbidity = colour) provides the colour signal.

The sensor model **PHOTOmat-AD** uses the same principle of measurement. Optical fibres separate flow cell and detection components. Two armoured fibres bundles go from the measuring cell to the LD- unit of the system. Lamp optics, reference detector and the measuring detector are located inside the LD- unit and not affected by process conditions, like temperature or pressure.

Model PHOTOmat-AD / Messenger



Advantages:

- **Low maintemance**
- **Calibration filter**
- **Calibration Interval typical 12 month**
- **Material of measuring windows: Sapphire**
- **Light transmission via armoured fibre bundles**
- **Pressure Rating: ANSI class 600 / PN64**
- **Temperature Rating: 180C°**
- **Active components (lamp & detectors) separated from process**
- **Optional cleaning jets / CIP & SIP capable**

Model MoniSpec-AD / Messenger

Advantages:

- **Low maintemance**
- **Calibration interval typical 12 month**
- **Material of measuring windows: Sapphire**
- **Pressure Rating: ANSI class 300 / PN16**
- **Temperature Rating: 140C°**
- **Installation: DIN, ANSI, SMS, NPT, APV, TH, ...**
- **Optional cleaning jets / CIP & SIP capable**

Typical Applications:

- **Product Colour**
- **Hazen Colour in APHA**
- **ASTM D1500 & ASTM D156 (Saybolt) Colour**
- **EBC Colour**
- **Lovibond Colour**
- **and many more!**

Chemtronic Waltemode GmbH, Sales & Service Partner for your MONITEK Products

40789 Monheim Niederstr. 14 Phone: +49-(0)2173-57007 Fax: +49-(0)2173-56007 E-mail: info@chemtronic-gmbh.de Internet: www.chemtronic-gmbh.de