NB: NEW!
The actual edition date is given with the procedure or evaluation. See also under "Note" (below).

Fluoride

Principle
Fluoride ions react with zirconium to form a colourless zirconium fluoride complex. This causes the red zirconium lake which is present to lose colour.

Range of Application
Drinking water, ground water, surface water, waste water, process control

Storage Information
The test reagents are stable at +15 to +25°C up to the expiry date given on the package.

Interferences
The ions listed in the table have been individually checked up to the given concentrations. Cumulative effects and the influence of other ions have not been determined by us. There is no interference from:

7000 mg/L:	Cl^-
200 mg/L:	SO_4^{2-}
35 mg/L:	Cl_2
30 mg/L:	Mn^{2+}
16 mg/L:	PO_4^{3-}
10 mg/L:	Fe^{2+}, Fe^{3+}
1 mg/L:	Sodium metaphosphate
0.1 mg/L:	Al^{3+}

The measurement results must be subjected to plausibility checks (dilute and/or spike the water sample).

Removal of Interferences
Measurements can be made at aluminium concentrations of more than 0.1 mg/L if the cuvette is allowed to stand after the reaction until there is no change in the measured value.

pH/Temperature
The pH of the water sample must be between pH 1 and pH 11. The temperature of the water sample and reagents should be 20°C.
If this is not the case, an incorrect result may be obtained.

Safety Advice
On grounds of quality and reliability, the analysis should be carried out only with original HACH LANGE accessories.

Note
The change indicated by the new edition date and the new colour of the working procedure concerns a ***change of factor for all types of photometers***.

Applies to
Photometer with Barcode-System,
DR1900, ISIS 6000, CADAS 200Basis,
CADAS 100 (LPG 185) / (≥ LPG 210)

Fluoride

Edition 10/2011

Insert sample cuvette as blank-value cuvette in the photometer, before adding the water sample (see evaluation)

Pipette into the cuvette test	
Water sample	3 mL
Close cuvette and invert a few times. After ***1 min*** thoroughly clean the outside of the cuvette and evaluate.	

CADAS 30/30S/50/50S	***12/2013***
Fluoride • λ: 588 nm • Pro.: 1 • F_1 = 3.815 • F_2 = -6.166 • F_3 = -0.032	
ISIS 6000/9000	***12/2013***
Fluoride • λ: 588 nm • Pro.: 1 • F_1 = 4.064 • F_2 = -6.368 • F_3 = -0.031	
CADAS 100 / LPG 240	***12/2013***
Fluoride • λ: 588 nm • Pro.: 3 • F_1 = 3.625 • F_2 = -6.059 • F_3 = -0.032	
CADAS 200 Barcode / Basis	***12/2013***
Fluoride • E1W1.M.E2W1 • (E2∗F2-E1∗F1-F3) • W1 = 588 nm • F1 = -3.528 • F2 = -5.947 • F3 = 0.041	
DR 2800/3800/3900/5000/6000	***12/2013***
www.hach-lange.com → LCK323 → Download → Software	

Fluoride

Edition 12/2013

Evaluation

1. Select »Barcode Programs«.
2. Select test number (see below).
3. Control number must be **8**.
4. Insert sample cuvette (***without*** water sample) and press »Read 1«.
5. Insert sample cuvette (***with*** water sample) and press »Read 2«.

Parameter	Test-No.	Meas. range
Fluoride	323	0.1 – 2.5 mg/L

CADAS 200Basis **LCK 323**

Fluoride

Edition 12/2013

Evaluation

1. Check program control number:
   __ : 42 (CADAS 200)
2. Select test number (see below).
3. Control number must be **8**.
4. Insert sample cuvette (***without*** water sample) and press green key.
5. Insert sample cuvette (***with*** water sample) and press green key.

Parameter	Test-No.	Meas. range
Fluoride	323	0.1 – 2.5 mg/L

ISIS 6000 **LCK 323**

Fluoride

Edition 12/2013

Evaluation

1. Check program control number:
   __ : 42 (ISIS 6000) ⇒ Select »CUVETTE TEST« mode.
2. Select test number (see below).
3. Control number must be **8**.
4. Insert sample cuvette (***without*** water sample) and press green key.
5. Insert sample cuvette (***with*** water sample) and press green key.

Parameter	Test-No.	Meas. range
Fluoride	323	0.1 – 2.5 mg/L

CADAS 100 (LPG 185) **LCK 323**

Fluoride

Edition 02/2012

Evaluation

1. Select »TEST« mode.
2. Select symbol (see below).
3. Select symbol » > «.
4. Check factors and measuring wavelength in memory »Mem«.
5. Close cuvette compartment – without cuvette – and press ”NULL“ (zero) key.
6. Insert sample cuvette (***without*** water sample) and press ”MESS“ (measure) key.
7. Remove cuvette, close cuvette compartment – without cuvette – and again press ”NULL“ (zero) key.
8. Insert sample cuvette (***with*** water sample) and press ”MESS“ (measure) key.

If more than one sample is to be measured start the next evaluation at point 5.

Parameter	Symbol	Meas. range
Fluoride	$ 323	0.1 – 2.5 mg/L

CADAS 100 (≥ LPG 210) **LCK 323**

Fluoride

Edition 12/2013

Evaluation

1. Select »TEST« mode.
2. Select symbol (see below).
3. Control number must be **8**.
4. Close cuvette compartment – without cuvette – and press ”NULL“ (zero) key.
5. Insert sample cuvette (***without*** water sample) and press ”MESS“ (measure) key.
6. Insert sample cuvette (***with*** water sample) and press ”MESS“ (measure) key.

If more than one sample is to be measured start the next evaluation at point 5.

Parameter	Symbol	Meas. range
Fluoride	323	0.1 – 2.5 mg/L

Fluoride

Edition 12/2013

Evaluation

1. Insert sample cuvette (***without*** water sample).
2. Insert sample cuvette (***with*** water sample).

Parameter	Meas. range
Fluoride	0.1 – 2.5 mg/L