

ReactIR Sampling for Every Application

In Situ Analysis for Process Understanding

Choosing the Right Sampling Technology for your Chemistry

At the heart of ReactIR™ is *in situ* sampling technology with the utmost in probe robustness and reproducibility to assure usability in a wide range of batch and continuous reaction conditions. Consider the following parameters to select the configuration that best matches your chemistry and application. The table on the following page can be utilized to locate sampling technology specifications and options (we recommend that new users contact a METTLER TOLEDO representative for guidance).

1. Choose the Series. Consider chemistry and application.



DST Fiber Conduit
Best choice for liquid-based reaction monitoring in the lab and plant. Maximum flexibility of use in a wide range of lab vessels and plant reactors without need for optical alignment. Widest range of analytical performance and compatible with all ReactIR base units.



DS Fiber to Sentinel
Best choice for liquid-based reaction monitoring of high temperature and pressure chemistry in the lab and plant. Maximum flexibility of use in a wide range of lab vessels and plant reactors without need for optical alignment.



K4/Sentinel
Best choice for liquid-based reaction monitoring of high temperature and pressure chemistry in the lab and plant. Maximum mid-infrared optical window for tracking complete fingerprint of reaction components. Monitor chemistry in the plant with low cost, long-life DTGS detector.



DS Micro Flow Cell
Best choice for continuous flow chemistry monitoring in the lab. Simple connection to all ReactIR base units without the need for optical alignment.



DS Fiber to Gas Cell
Best choice for gas phase reaction and headspace monitoring in the lab and general purpose plant applications. Maximum optical conduit flexibility without the need for alignment.

2. Choose the Sensor (located at probe tip). Consider pH, chemical compatibility and mid-infrared optical window.

SiComp
(pH range: 1 to 10)
Wide optical window however, Silicon is susceptible to abrasion and chemical attack by superacids/bases, concentrated HCl, H₂SO₄ and HNO₃, as well as halogenated chemistry.

DiComp
(pH range: 1 to 14)
Diamond is extremely robust.








3. Other Considerations.* Consider Temperature, Pressure, Material Compatibility and Probe and Vessel Dimensions.

Temperature and Pressure
Check your chemistry requirement against the probe specification.

Material Compatibility
Wetted materials are alloy C22 (probe) and gold (sensor seal) for standard probes, aside from diamond or silicon.

Probe Dimensions
Check your reaction vessel volume for insertion specification.

*Contact METTLER TOLEDO for information about special needs including custom sizing, extreme-temperature, high-pressure or hazardous area applications.

		Sensor		Fiber Length					Probe Length			Probe Diameter (mm)	Optical Window	Temperature Range	Pressure Limit	
		DiComp™	SiComp™	1.0 m	1.5 m	2.0 m	3.0 m	4.0 m	203 mm	305 mm	457 mm					
DST Series 9.5 mm AgX Fiber Conduit 	14474504	•			•						•		9.5	2500 to 2250 cm ⁻¹ and 2000 to 650 cm ⁻¹	-80 to 180 °C	1000 psi (69 barg)
	14474506	•				•					•		9.5	1900 to 650 cm ⁻¹	-80 to 180 °C	1000 psi (69 barg)
	14474507	•				•					•		9.5	1900 to 650 cm ⁻¹	-80 to 180 °C	1000 psi (69 barg)
	14474552	•					•				•		9.5	1800 to 650 cm ⁻¹	-80 to 180 °C	1000 psi (69 barg)
	14474553	•					•				•		9.5	1800 to 650 cm ⁻¹	-80 to 180 °C	1000 psi (69 barg)
	14474554	•						•			•		9.5	1800 to 650 cm ⁻¹	-80 to 180 °C	1000 psi (69 barg)
	14474555	•						•			•		9.5	1800 to 650 cm ⁻¹	-80 to 180 °C	1000 psi (69 barg)
	14474505		•		•						•		9.5	2500 to 650 cm ⁻¹	-80 to 180 °C	1000 psi (69 barg)
	14474508		•			•					•		9.5	2500 to 650 cm ⁻¹	-80 to 180 °C	1000 psi (69 barg)
	14474509		•			•					•		9.5	2500 to 650 cm ⁻¹	-80 to 180 °C	1000 psi (69 barg)
DST Series 6.3 mm AgX Fiber Conduit™ 	14474510	•			•					•		6.3	2500 to 2250 cm ⁻¹ and 2000 to 650 cm ⁻¹	-80 to 180 °C	1000 psi (69 barg)	
	14474512	•			•					•		6.3	2500 to 2250 cm ⁻¹ and 2000 to 650 cm ⁻¹	-80 to 180 °C	1000 psi (69 barg)	
	14474514	•				•				•		6.3	1900 to 650 cm ⁻¹	-80 to 180 °C	1000 psi (69 barg)	
	14474511		•		•					•		6.3	2500 to 650 cm ⁻¹	-80 to 180 °C	1000 psi (69 barg)	
	14474513		•		•					•		6.3	2500 to 650 cm ⁻¹	-80 to 180 °C	1000 psi (69 barg)	
	14474515		•			•				•		6.3	2500 to 650 cm ⁻¹	-80 to 180 °C	1000 psi (69 barg)	
Sentinel Sensor 	14130019	•		Couple with Fiber or K4 Conduit					29 mm	25	Refer to conduit specifications (below) for high-level temperature and pressure ratings					
	14130119		•						29 mm	25						
DST Series Fiber to Sentinel Conduit 	14474765	--	--	•						Conduit Only Couple with Sentinel	25	DiComp: 2500 to 2250 cm ⁻¹ and 2000 to 650 cm ⁻¹ SiComp: 2500 to 650 cm ⁻¹	-80 to 200 °C	1500 psi (107 barg)		
	14474766	--	--		•											
	14474767	--	--			•										DiComp: 1900 to 650 cm ⁻¹ SiComp: 2500 to 650 cm ⁻¹
K4 Conduit to Sentinel 	14106912	--	--	17" (44 cm) Articulated arm					Conduit Only Couple with Sentinel	25	DiComp: 4000 to 2250 cm ⁻¹ and 2000 to 650 cm ⁻¹ ; SiComp: 4000 to 650 cm ⁻¹	-80 to 200 °C	1500 psi (107 barg)			
DST Series Fiber to Gas Cell 	14474724	--	--	•						Conduit Only Couple with Gas Cell	--	2500 to 650 cm ⁻¹	ambient to 200 °C	300 psi (20 barg)		
	14474763	--	--		•											
	14474764	--	--			•										
DS Micro Flow Cell 	14430688	•		--					--	--	4000 to 2250 cm ⁻¹ and 2000 to 650 cm ⁻¹	ambient to 60 °C	500 psi (35 barg)			
	14430689		•	--					--	--	4000 to 650 cm ⁻¹	ambient to 60 °C	500 psi (35 barg)			

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