

The selection of a fill fluid for a diaphragm seal application requires a careful review of the application conditions. The fill fluid characteristics determine to a large extent the diaphragm seal system performance in terms of response time and temperature effect. Several fill fluid characteristics need to be taken into account to make the appropriate selection of the fill fluid.

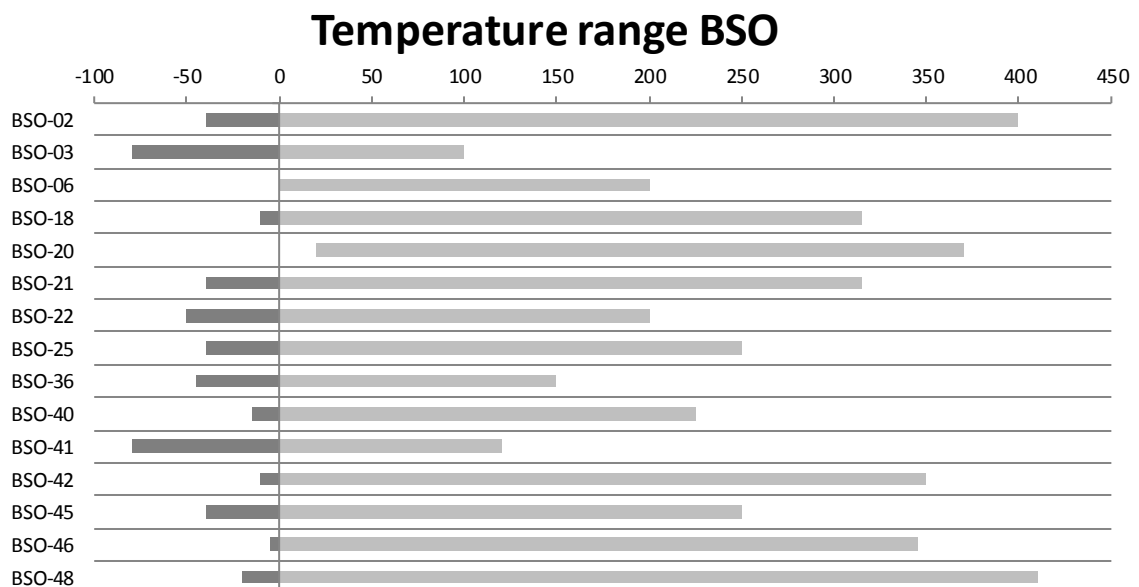
At first the **type of fill fluid** is important as it should be compatible with the process medium. The most commonly used are Silicone or Inert based fluids, but also other specific types are used; all with specifications and characteristics to match different conditions. The **operating temperature** of the fill fluid is the second

important factor for selection. The application temperature should remain between the limits to guarantee proper functioning of the application. All fill fluids expand or contract with changes in temperature and this is referred to as the diaphragm seal temperature effect. The fluid **viscosity and density** have an effect on the response time of the application. A more viscous fill fluid will result in a longer response time and a fill fluid with a higher density will have an increased mounting effect. The **vapour pressure** curve shows if the selected fill fluid is suitable for the minimal process pressures in combination with the desired process temperatures. This is especially important for vacuum applications.

SPECIFICATIONS

name	type	operating temperature (°C)	viscosity (cSt)	density (kg/dm ³)	
BSO-02	Silicone	-40/+399	9.85	0.93	
BSO-03	Inert	-80/+100	2.4	1.82	
BSO-06	Inert	0/+200	40.0	1.92	
BSO-18	Silicone	-10/+315	38.0	1.07	
BSO-20	Silicone	+20/+350	175.0	1.09	
BSO-21	Silicone	-40/+315	125.0	1.07	
BSO-22	Silicone	-50/+200	20.0	0.95	
BSO-25	Inert	-40/+250	31.5	1.87	
BSO-36	Silicone	-45/+150	10.0	0.93	
BSO-40	Polyol diester	-15/+225	9.5	0.94	FDA approved
BSO-41	Silicone	-80/+120	5.0	0.92	
BSO-42	Silicone	-10/+350	57.6	1.07	
BSO-45	Hydrogenerated mineral oil	-40/+250	9.85	0.82	FDA 21 GRF
BSO-46	Hydrogenated terphenyl	-5/+345	29.4	1.01	
BSO-48	Silicone	-20/+420	57.6	1.08	

OPERATING TEMPERATURE GRAPH (°C)



VAPOUR PRESSURE RESULT

Process Temp. °C	BSO-02 mbara	BSO-03 mbara	BSO-06 mbara	BSO-18 mbara	BSO-20 mbara	BSO-21 mbara	BSO-22 mbara	BSO-25 mbara	BSO-36 mbara	BSO-40 mbara	BSO-41 mbara	BSO-42 mbara	BSO-45 mbara	BSO-46 mbara	BSO-48 mbara
-140															
-80		1									1				
-70		1									1				
-60		1									1				
-45		1					1		1		1				
-40	1	1				1	1	1	1		1		1		
-20	1	1				1	1	1	1		1		1		1
-15	1	1				1	1	1	1	1	1		1		1
-10	1	1		1		1	1	1	1	1	1	1	1		1
-5	1	1		1		1	1	1	1	1	1	1	1	1	1
0	1	1	10	1		1	1	1	1	1	1	1	1	1	1
10	1	1	10	1		1	1	1	1	1	1	1	1	1	1
20	1	1	10	1	1	1	1	1	1	1	1	1	1	1	1
40	1	4	10	1	1	1	1	1	1	1	1	1	1	1	1
60	1	12	10	1	1	1	1	1	1	1	50	1	1	1	1
80	10	28	10	1	1	1	1	2	50	2	150	1	1	1	1
100	40	105	10	1	1	1	1	5	150	2	300	1	1	2	1
120 ¹	85		10	1	1	1	7	9	243	6	500	1	2	4	1
150	260		10	1	1	1	140	23	500	30		1	5	10	1
180	600		30	1	1	1	300	47		500		10	15	20	1
200	950		1000	10	1	20	500	74		875		20	50	40	1
225										1120					
230	1720			20	1	30		133				50	200	60	3
250	2420			50	1	500		195				100	250	100	6
260	2840			100	5	600						200		150	8
280	3800			200	15	1000						500		250	14
300	4960			500	30	2000						1000		400	28
315	6310			3000	150	3000						1200		600	46
345														900	
350	8710				1000							1500			140
380	11600														380
399	13700														
400															700
420															1022

¹ Interpolation is used to determine the quantity mbara.



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