



**SPUR Photochemie**  
**Dr. Heidrich + Schain GbR**  
Schmiedestr. 31, D-52379 Langerwehe  
**Tel.:** 02423-6198 **Mobil:** 0173-7086525  
**Fax:** 02423-406980  
**Web:** [www.spur-photo.com](http://www.spur-photo.com)  
**E-Mail:** [schain@spur-photo.com](mailto:schain@spur-photo.com)  
**CEO:**  
Dipl.-Ing. Heribert Schain

## Data Sheet for SPUR SHADOWmax

**SPUR SHADOWmax is a special push developer for Kodak Tmax 400. With SHADOWmax you get results at a maximum ISO of 1600/33° which are not possible with any other developer.**

Of course it has been possible to push Kodak Tmax 400 to ISO 1600/33° so far. However, the following disadvantages occur, which are considerably more serious than in other films:

- 1.) Shadow detail is basically not present
- 2.) Because of the character of this film, highlights become too dense and are blown out
- 3.) The larger grain caused by the increase in film speed is further increased by the resulting steep gradation
- 4.) In a compensating development (eg with Atomal), which partially avoids the aforementioned disadvantages, the sharpness as well as the shadow detail are completely sub-optimal.

**All these disadvantages are completely avoided when using our new developer "SPUR SHADOWmax".**

That's why **Tmax 400** can now be used at ISO 1600/33° by demanding photographers. All shadow details, normal contrast and normal highlights are present. The developed film has a fine grain, a resolution and a sharpness, which was previously unachievable at this sensitivity.

**Kodak Tmax 100** also achieves results previously considered impossible. The sensitivity of this film can be up to **ISO 800/30°!** with the same good tonal values that apply to the Kodak Tmax 400. Only the shadow detail is slightly lower at Tmax 100 from ISO 400/27° and higher.

The working solutions used to determine the sensitivity and contrast values were prepared with distilled water. The use of distilled water is strongly recommended.

**The values in the table below refer to a development temperature of 20°C (68°F). The agitation rhythm to be used is: The first 30 seconds permanently, then as described in the table. Developer temperatures other than 20°C are also listed in the "Developing Time" column.**

**Important:** All temperatures >20°C represent the filling temperature of the working solution. It is not necessary to keep this temperature constant (eg in a warm water bath) during development; it would distort the results. It is only necessary to ensure that the development takes place in a room with a normal room temperature of approx. 20°C to 21°C. If the development takes place in the summer at higher room temperatures, the development time must be reduced accordingly. It should be noted that the higher the room temperature is on one hand, and the higher the filling temperature is on the other hand, the more the development time has to be reduced.

The new developer is a 2-component developer, such as SPUR HRX. The dilution given refers to part A. Part B is varied in four different stages, depending on the film speed:

**Dilution X: The amount of part B is the same as part A**

**Dilution Y: Based on part A, twice the amount of part B is used**

**Dilution Z: Part B is 10% of the volume of the working solution**

**Dilution 0: The amount of part B is zero.**

For example in the development table the dilution is "1 + 14 / z". In this example, the dilution of part A is 1 + 14, part B is 10% of the volume of the working solution. Therefore for 500 ml of working solution, the following parts are mixed: 33ml (500ml/(1+14)) part A + 50ml (10% of 500ml) part B, fill up to 500 ml with distilled water.

**So far only Kodak Tmax 100, Kodak Tmax 400 and Kodak Tri X (TX 400) have been tested! SPUR SHADOWmax is not a developer for all films, as the developer works very softly and is therefore not suitable for low contrast films. The suitable films are still being tested!**

## Developing Data

Manufacturer/Film	Film Speed ISO	Dilution	Developing Time (min)	Agitation	Contrast
Kodak Tmax 100	100/21°	1 + 49/x	12,5	Once each min	Normal (N)
	200/24°	1 + 24/y	11	Once each 2 min	Hardly higher (N + 0,25)
	400/27°	1 + 19/z	14	Once each 2 min	Normal (N)
	400/27°	1 + 14/z	13	Once each 2 min	Slightly higher (N + 0,5)
	640/29°	1 + 14/y	15	Once each min	Hardly higher (N + 0,25)
	800/30°	1 + 14/y	15	Once each min	Normal (N)
Kodak Tmax 400	400/27°	1 + 60/x	15	Once each min	Slightly lower (N - 0,5)
	400/27°	1 + 49/x	13	Once each min	Slightly lower (N - 0,5)
	800/30°	1 + 40/y	11	Once each min	Normal (N)
	1600/33°	1 + 19/z	13	Once each 2 min	Hardly higher (N + 0,25)
Kodak Tri X 400	400/27°	1 + 30/0	13	Once each min	Normal (N)
	800/30°	1 + 19/z	14	Once each 2 min	Normal (N)
	1250/32°	1 + 14/y	14	Once each min	Slightly higher (N + 0,5)
	1600/33°	1 + 11/z	15	Once each 2 min	Slightly higher (N + 0,5)
	2000/34°	1 + 9/z	15	Once each min	Higher (N + 1)