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Data Sheet for SPUR Nanotech UR

The new SPUR Nanotech UR is a high speed and push developer for the SPUR Orthopan UR film. Nanotech UR generates fine tonality with this high-contrast and high-resolution Orthopan UR.

For the first time it is possible to expose a **35mm-film at ISO 6/9° to ISO 50/18°**. A **120-film can be exposed at ISO 8/10° to ISO 40/17°**. SPUR Nanotech UR keeps all the advantages of SPUR Nanospeed SL. Shelf life, tolerance against user error and image quality are same or better at the same film speed.

The specified film speeds correspond to the ISO standard at ISO 6/9° and ISO 8/10° respectively. All higher film speeds are push sensitivities following this definition: caucasian skin color tones (zone VI in the zone system) must have the same density like a N-development at box speed. Density should be $\log D=1.0$ (minimum 0.9).

Up to ISO 25/15° very good tonality can be reached with 35mm-film; the highlights do not become too dense. From ISO 32/16° the negatives have a contrast of N+0.5. From ISO 40/17° it equals a N+1 development with a bit harsher highlights. If 120-film is exposed at ISO 40/17°, the contrast is N+0.5.

For motifs with high contrast, we recommend to use a maximum speed of ISO 32/16° with 35mm-film. If the contrast of the motif is low, a speed setting of ISO 40/17° or higher results in high detail contrast and very detailed negatives.

SPUR Nanotech UR is a one-part developer which is very easy to handle.

Technical Data of SPUR Orthopan UR Film:

Film type: silver halide film with anti-halation layer

Spectral sensitivity: orthopanchromatic

Granularity: RMS (at density 1.0 and aperture 25 μ): 14

Granularity of SPUR Orthopan UR is much smaller than SPUR DSX film.

Resolution: 800 LP/mm (at a contrast of 1000:1)

Reciprocity failure: 1 second: +1/2 stop, 10 seconds: +1 stop, 1/1000 second: +1/2 stop

Exposure: Please note the following

- 1.) Because of the characteristics of the 35mm-film base, light can travel along the perforations and might damage the first exposures. The film should always be kept in a black film can before and after exposure. The film should be loaded in the shadow.
- 2.) The thickness of coating of high resolution films is lower compared to conventional film. Flatness of film in the camera is very important to get highest sharpness. The aperture should be closed one to two stops to get enough depth of field, to compensate for not-perfect film flatness.
- 3.) The camera must have a manual setting of film speed

Film Processing:

The different film sensitivities are reached by different developing temperatures, dilutions, agitation rhythms and developing times. **Important:** all temperatures are the temperatures the working solution should have at the moment, when it is poured into the tank. It is not necessary to keep the temperature constant during the developing process. The film should be processed at room temperature of 20° to 22°C.

If the film is developed at higher room temperatures (in the summer for example), the developing time has to be shortened accordingly. The developing time has to be shortened the more, the higher the room temperature is on one hand and the higher the developer temperature at the beginning of development is on the other hand.

Pre-soaking is not necessary and can change the contrast. All parameters for developing can be found in the table below:

It is recommended to use distilled water. Even slightly harder tap water can lower quality, sensitivity and contrast.

Developing Chart of 35 mm film

Film Speed ISO	Dilution	Developing temperature at filling moment	Developing Time (min)	Inversion tact First 30 sec permanently, then:	Contrast
6/9°	1 + 24	20° C	7,5	Once each min	Normal (N)
12/12°	1 + 24	22° C	7,5	Once each min	Normal (N)
25/15°	1 + 24	25° C	9	Once every 2 min	Normal (N)
32/16°	1 + 20	28° C	10	Once every 2 min	Slightly increased (N + 0,5)
40/17°	1 + 20	30° C	15	Once every 2 min	Moderately high (N + 1)
50/18°	1 + 14	30° C	15	Once every 2 min	Moderately high (N + 1)

Developing Chart of 120 film

Film Speed ISO	Dilution	Developing temperature at filling moment	Developing Time (min)	Inversion tact: First 30 sec permanently, then:	Contrast
8/10°	1 + 14	20° C	9	Thrice every min	Somewhat lower (N - 0,5)
12/12°	1 + 20	20° C	12	Twice every min	Normal (N)
20/14°	1 + 24	24° C	8,5	Once every min	Normal (N)
25/15°	1 + 20	28° C	10	Once every 2 min	Slightly increased (N + 0,5)
32/16°	1 + 20	30° C	15	Once every 2 min	Slightly increased (N + 0,5)
40/17°	1 + 14	30° C	15	Once every 2 min	Slightly increased (N + 0,5)

Further Processing Notes

1.) Quality

At lower sensitivity grain is a bit smaller, resolution higher and exposure latitude wider. Sharpness and detail contrast are a bit better at higher sensitivities.

2.) Development of Adox CMS 20

Adox CMS 20 is developed according to the table for 120-film. It does not matter if 35mm-film or 120-film is used.

3.) Stop bath

After development no water should be used. Either use a stop bath or directly use an acidic fixer.

4.) Fixing and washing

Fixing time is only 30-60 sec. For archival processing, a washing time of 5 min is sufficient

5.) Wetting agent and drying

The wetting agent solution should be less concentrated than for conventional films. It is recommended to use a separate container for the wetting agent treatment to avoid wetting agent contaminating the developer during the next development.

Remains of wetting agent can cause the developer to foam which might result in developing errors.

After the wetting agent we recommend to wipe the film with a white paper towel without color print to shorten drying time.

6.) Shelf life and capacity

Working solutions can be kept 10-14 days in fully filled bottles. The shelf life can be extended by storing the solution in a fridge. Please note that the developer concentrate should not be stored in a fridge. The developer should be stored at a temperature over 13° C .

With 250 or 300ml working solution one 35mm-film can be developed. After developing one film, this working solution should not be used anymore. With 500 or 600 ml working solution two 35mm-films or two 120-films can be developed. The 120-films can be developed at the same time (two films on one reel) or after each other. It is not necessary to extend developing time for the second film. Development of the second film should happen within the shelf life of the working solution.