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Data Sheet SPUR Nanospeed SL 135

SPUR Nanospeed SL 135 is a new special developer for the pictorial development of the highest resolving power SPUR Orthopan UR 35 mm film and so replaces the previous SPUR Modular UR developing technique for this microfilm.

SPUR Nanospeed SL 135 enables much easier, straightforward handling and development making high resolving power photography quickly accessible for first time users. The up to now rather exacting, dynamic developing process is no longer applicable because **SPUR Nanospeed SL 135** is very easy to use and exhibits a very high fault tolerance.

SPUR Nanospeed SL 135 improves the previous standard in every respect. This new developing technique attains a much higher detail contrast, which leads to a hitherto unmatched sharpness and shadow differentiation equalled neither by rivalling analog techniques nor digital photography. Owing to the high exposure latitude even very high contrasts are mastered and tones are rendered which other developing techniques cannot provide.

The key advantage is however the very long storage life of the new developer of 3 to 4 years. Even after more than 4 years the same developing results are achieved with no loss in either contrast or speed.

SPUR Nanospeed SL 135 can moreover be manufactured in a much more cost-efficient way than previous Modular developers. This saving of costs is benefitting the user, for the price per film development is now considerably reduced by ca. 50%.

Technical Data on SPUR Orthopan UR 35 mm Film:

Film type: silver halides with A.H.U anti-halation-undercoating
Spectral sensitivity: orthopanchromatic
Graininess: RMS-graininess at density 1.0 and aperture size of 24 µ = 14. A comparison with SPUR DSX on the basis of this value is not possible as the graininess of DSX was measured at a different aperture size (48 µ). The graininess of **Orthopan UR** is very much lower!
Resolution: The resolving power attains 800 LP/ mm at a contrast ration of 1000 : 1.
Reciprocity: 1 sec + ½ f/ number, 10 sec + 1 f/ number, 1/1,000 sec + ½ f/ number

Shooting – The Following Requirements Must Be Ensured

1. Due to the properties of the film base, flare may penetrate the cartridge along the perforation from the tip end of the film. This may spoil the first shots. In order to avoid this, the film should be kept in an opaque film can and **must not be exposed to light** before or after exposure. Make sure the film is not exposed to bright light when loading the camera; do choose a dim environment.
2. Compared to conventional black-and-white films, high resolution microfilms have a lower emulsion thickness. Therefore the optimal flatness of the film is especially important. Take care to stop down once or twice to make sure there is sufficient depth of focus to compensate for a possible drifting-off of the emulsion from the optimal focal plane.
3. The camera must provide for a manual adjustment of film speed.

Film Processing: **SPUR Nanospeed SL 135** consists of Part A and Part B, which are mixed to obtain the working solution depending on the chosen film speed and contrast as prescribed below.

Important: All indications of temperature refer to the filling temperature of the working solution. It is not necessary to maintain that temperature (e.g. in a warm water bath) during development. However development should take place at normal room temperature (20 - 22° C). Pre-wash is not required and might change contrast.

Normal Contrast N:

1. Norm Development For Normal Contrast With Outstanding Light And Shadow Differentiation
Resulting Film Speed ISO 6/9°
To prepare 250 ml working solution: 25 ml Part A + 7 ml Part B, fill up to 250 ml with distilled water
Developing time at 20° C: 10 min
Inversion: permanently the first 30 sec, then once every min

2. Alternatively: Somewhat Steeper Lights Than With Norm Development
Resulting Film Speed ISO 8/10°
To prepare 250 ml working solution: 25 ml Part A + 5 ml Part B, fill up to 250 ml with distilled water
Developing time at 20° C: 10 min
Inversion: permanently the first 30 sec, then once every min

3. Alternatively: Somewhat Flatter Lights Than With Norm Development
Resulting Film Speed ISO 8/10°
To prepare 250 ml working solution: 25 ml Part A + 10 ml Part B, fill up to 250 ml with distilled water
Developing time **at 22° C:** 8 min
Inversion: permanently the first 30 sec, then once every min

Increased Contrast N + 1:

1. Norm Development For Increased Contrast
Resulting Film Speed ISO 8/10°
To prepare 250 ml working solution: 25 ml Part A + 7 ml Part B, fill up to 250 ml with distilled water
Developing time **at 22° C:** 10 min
Inversion: permanently the first 30 sec, then once every min

2. Alternatively: Somewhat Lower Contrast N + 0.9
Resulting Film Speed ISO 10/11°
To prepare 250 ml working solution: 25 ml Part A + 10 ml Part B, fill up to 250 ml with distilled water
Developing time **at 22° C:** 10 min
Inversion: permanently the first 30 sec, then twice every min

3. Alternatively: Somewhat Higher Contrast N + 1.1
Resulting Film Speed ISO 10/11°
To prepare 250 ml working solution: 25 ml Part A + 10 ml Part B, fill up to 250 ml with distilled water
Developing time **at 24° C: 9** min
Inversion: permanently the first 30 sec, then twice every min

Very High Contrast N + 2:

1. Use Only With Extremely Low Subject Contrasts
Resulting Film Speed ISO 12/12°
To prepare 250 ml working solution: 25 ml Part A + 5 ml Part B, fill up to 250 ml with distilled water
Developing time **at 24° C:** 11 min
Inversion: permanently the first 30 sec, then twice every min

Reduced Contrast N - 1 (For Condenser: Increased Contrast N + 1):

1. Norm Development For Reduced Contrast With Great Shadow and Fair Light Differentiation
Resulting Film Speed ISO 5/8°
To prepare 250 ml working solution: 25 ml Part A + 10 ml Part B, fill up to 250 ml with distilled water
Developing time at 20° C: 9 min
Inversion: permanently the first 30 sec, then once every min

2. Alternatively: Somewhat Softer Lights
Resulting Film Speed ISO 5/8°
To prepare 250 ml working solution: 25 ml Part A + 7 ml Part B, fill up to 250 ml with distilled water
Developing time at 20° C: 7 min
Inversion: permanently the first 30 sec, then once every min

Very Low Contrast N - 2 (For Condenser: Slightly Increased Contrast N + 0.5):

1. Use Only With Extremely High Subject Contrasts
Resulting Film Speed ISO 4/7°
To prepare 250 ml working solution: 25 ml Part A + 10 ml Part B, fill up to 250 ml with distilled water
Developing time at 20° C: 8 min
Inversion: permanently the first 30 sec, then once every min

Further Processing Instructions

1. Intermediate Rinsing

Do not rinse after development. You may use either an acidic stop bath or acidic fixer immediately after development.

2. Fixing and Rinsing

Fixing time is only 30 to 60 sec. Rinsing can be reduced to 5 min to ensure total archiving security.

3. Wetting Agent And Drying

The wetting agent should not be as concentrated as is standard with conventional films. Also we recommend using the wetting agent outside the development tank and thoroughly rinsing the spiral afterwards. Dried residue of wetting agent might froth up and cause air bubbles, possibly resulting in faulty development. After use of the wetting agent we recommend films are wiped carefully with white kitchen roll (without any colour prints). Use the soft side. This way, surplus water and any residual dirt are soaked up, which speeds up the drying process.

4. Storage Life

SPUR Nanospeed SL 135 is extremely stable. Part A, which contains the developer substances, like all developers is subject to oxidation. Therefore we recommend the use of protective gas (Protectan) with the original, gas-proof PET bottle after opening. This is very effective. The storage life of the unopened bottle is ca. 3 years.
Part B on the other side does not contain any developer substances and is therefore not subject to oxidation. Thus **Part B** has a virtually unlimited storage life and does not require the use of protective gas.
Prepared working solution is also very stable and lasts at least four weeks in a full bottle.

5. Capacity Of Working Solutions

250 ml working solution are sufficient for the development of one 35 mm film. After that, the working solution should be discarded. 500 ml working solution are sufficient for the development of two 35mm films or two roll films respectively. Roll films can be developed either at the same time (two films on one spiral) or one after another as desired. If developing films consecutively, there is no need to prolong the developing time. Due to the high stability of the working solution, the second development can be made at any point in time before its expiration.

6. Analog-Digital-Interface (A/ D-Interface)

High-performance scanners can be used to create picture files that allow for prints of absolutely outstanding quality. Such digitally created prints, however, cannot compete with the quality of photochemically created prints. This is because the resolution of even the best high-performance scanners available on the market right now is by far not sufficient to make full use of the resolving power potential boasted by high resolution microfilms.
Hence the scan quality is much better if you do not scan the negative, but a photochemically created print using a flat-bed scanner.