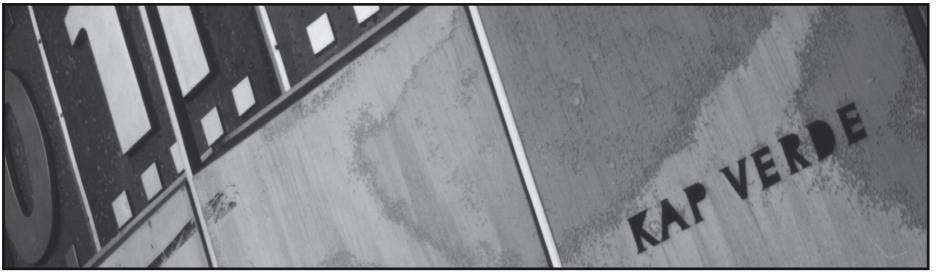
ADOX CMS 20 Ultrahighresolution-Film

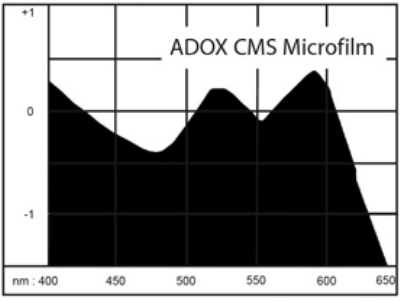
Up to 20 ASA achievable when developing to greyscales • Up to 800 lp / mm resolution



ADOX CMS 20 and ADOTECH II

The spectral sensitivity of ADOX CMS 20 differs only slightly from that of other slow speed films. When designing the emulsion special care was taken to achieve a superior tonal differentiation. CMS differs very good between red and blue. His sensitivity ranges from 400nm just until 650 nm. He is thus an orthopanchromatically sensitized film. ADOX CMS 20 is a monodisperse, ultrahigh resolving document-film. In order to make this material usable for pictorial photography ADOX developed the ADOTECH II chemistry system which leads to superior results. Comparing ADOTECH II with ADOTECH I the characteristic curve of the films was straightened which results especially to an improved highlight differentiation.

Spektrale Empfindlichkeitsverteilung:
Spektral Sensitivity Curve:



Technical Data ADOX CMS 20

Filmart:
Silver halide recording material with an anti-halation layer inbetween emulsion and filmbase yielding highest sharpness and resolving power. Light cannot difusse within the base layer.
Filmspeed for normal contrast situations: ISO 16/12°.
Filmspeed for reduced contrast situations: ISO 20/14°
Spectral sensitivity: Orthopanchromatic.

Grain-Size:
RMS at densitiy 1,0 und a focal opening of 25µ = 14.
Other films are measured at 45µ because they cannot resolve as much as CMS 20.
Therefore this value is theoretical. The film exceeds the possible image transfer of an optical system at a focal opening of 45µ. CMS 20 is the finest grain and highest resolution recording material known on earth.

Reziprocity failure:
1 Sec. + 1/2 F-Stop, 10 Sec. + 1 F-Stop, 1/1000 Sec. + 1/2 F-Stop.

Resolution:
Resolution in high contrast 1000 : 1 = 800 Lp/mm (line pairs/mm).
(Do not confuse with lines/mm)
Note: Because of the clear Polyester base of the film light may penetrate through the cartridge mouth and spoil the first images. Please always keep the film in the black light tight containers before loading. Load the film in subdued light quickly.
Because of the thin emulsion the film pops more easy out of focus.
The best way to work around this is to stop down at least one stop. If you stop down more than 2 stops your lenses resolution will be reduced. The best is to use high quality fast fixed focal length lenses (e.g. Leitz Summicron Asph. 1:2/35mm).
Stopped down to 5,6 such a lens yields highest resolution.

You have to use a camera with the possibility of manual filmspeed settings. There is no DX code assigned to 16 or 20 ASA!

Processing of ADOX CMS 20 in ADOX ADOTECH CMS II Developer

Processing of 6 rollfilms 120 or 6 35mm films in 500 ml of working solution

1. Film 1 and 2: pour **16,5 ml of ADOTECH** in your beaker and fill to 500 ml with 20° or 24° C warm water
2. Film 3 and 4: pour **25 ml of ADOTECH** in your beaker and fill to 500 ml with 20° or 24° C warm water
3. Film 5 and 6: pour **50 ml of ADOTECH** in your beaker and fill to 500 ml with 20° or 24° C warm water

After the first and second development fill up the little glass ADOTECH bottle with water to 50ml.
This way ADOTECH stays fresh for one year even though you have opened the bottle already.

With each 500 ml of working solution 2 rollfilms 120 can be processed.
We recomend developing the films one after the other instead of spooling two films in one reel.
Increase the developing time with each second film by 10 to 15%.

Processing of 6 35mm films in 250 ml of working solution (Jobo Tank 1501)

1. Film 1: pour **8,3 ml** of ADOTECH in your beaker and fill to 250 ml with 20° or 24° C warm water
2. Film 2: pour **10 ml** of ADOTECH in your beaker and fill to 250 ml with 20° or 24° C warm water
3. Film 3: pour **12,5 ml** of ADOTECH in your beaker and fill to 250 ml with 20° or 24° C warm water
4. Film 4: pour **16,6 ml** of ADOTECH in your beaker and fill to 250 ml with 20° or 24° C warm water
5. Film 5: pour **25 ml** of ADOTECH in your beaker and fill to 250 ml with 20° or 24° C warm water
6. Film 6: pour **50 ml** of ADOTECH in your beaker and fill to 250 ml with 20° or 24° C warm water

After each development fill up the little glass ADOTECH bottle with water to 50ml.
This way ADOTECH stays fresh for one year even though you have opened the bottle already.

In case you don´t own a chemistry saving Jobo 1501 tank you can use the 300ml version below but in this case you can only develop a total of 5 films!

Processing of 5 35mm films in 300 ml of working solution (various tanks)

1. Film 1: pour **10 ml** of ADOTECH in your beaker and fill to 300 ml with 20° or 24° C warm water
2. Film 2: pour **12,5 ml** of ADOTECH in your beaker and fill to 300 ml with 20° or 24° C warm water
3. Film 3: pour **16,6 ml** of ADOTECH in your beaker and fill to 300 ml with 20° or 24° C warm water
4. Film 4: pour **25 ml** of ADOTECH in your beaker and fill to 300 ml with 20° or 24° C warm water
5. Film 5: pour **50 ml** of ADOTECH in your beaker and fill to 300 ml with 20° or 24° C warm water

After each development fill up the little glass ADOTECH bottle with water to 50ml.
This way ADOTECH stays fresh for one year even though you have opened the bottle already.

Developing time in minutes:

ISO \ TEMP.	20˚C / 68˚F	24˚C / 75˚F
12/12˚	8,5 min.	-
20/14˚	-	10 min.

• In 250 or 300 ml of working solution **one film** can be developed.
• The working solution can be kept for 2-3 days under protective gas or in fully filled glass bottles
• Agitation: First half minute ongoing than once every minute
We recomend tank agitation and no rotating processors because this will give you best results. There is no need for pre-watering the film. pre-watering will lead to an increased contrast.
People tend to agitate differently. If you notice too high a contrast decrease the development time slightly. if you find the contrast is to low increase the development time sligthly. Try to keep your agitation constant.

• After the development you **MUST** use an acidic stop bath before fixing. Do **NOT** use plain water.

• Fixing:
Because of the small, fine grains ADOX CMS 20 needs only 30 to 60 seconds of fixing in regularily diluted fixers at 20°C. If you overfix the film your highlights (in the negative) will burn out.

• Washing: Can be shortened to 5 Minutes.

ADOTECH II yields a very high tolerance against density irregularities in large homogenous grey areas which are common for microfilms. In order to keep this protection we recomend developing only one film at a time in a tank. Clean your tanks thoroughly before use to wash out all fixer. Ideally use a separate tank just for ADOTECH.

Characteristics of ADOX ADOTECH II developer

- Very good film speed utilisation
- Enhanced edge sharpness and resolution
- Very good detail contrast
- Remarkable exposure latitude. Capable of equalizing high object contrast and better resolution in the highlights.
- Enhanced highlight and shaddow differentiation without negatice affect on the midtones.
- Very good dmax.
- Very fine grain
- Surpresses artefacts in large homogenous grey areas
- Easy to use (can be used in tanks also used for other developers)
- Remarkably long shelve life for a technical developer
- Low toxidity (no Hydrochinon or poissons)

Important notice: CMS 20 and ADOTECH are to be considered a closed imaging system. CMS 20 is not a „regular" film de-sigend to produce halftones (greyscales) in any reducing agent. The ultrahigh resosultion of this imaging system is based on the monodisperse ultrafinegrain emulsion of this film and the special developing technique used in ADOTECH II. This is the reason why you cannot develop CMS 20 in any other developer.
The inventors of ADOTECH II dedicated half a humans lifespan to formulate this very special developer.

If you use a generic developer the film will get black but results will be high in contrast, unpredictable and poor.
Please understand that for the above reaons we cannot give any technical support for other developers but ADOTECH II.

Complaints
In case of a complaint we always need unexposed and exposed material to be sent back (if possible in the original packaging). In any case we need the full emulsion number. Faulty material will be replaced by with new material of the saem amount and kind. Any consequential damages are excluded. Silver halides (processed film) are beeing affected by other chemicals and may change in colour over time. There can be no guaranty given that processed materials will never change as there are to many factors (one of them being the way the film has been treated in processing) affecting the material.