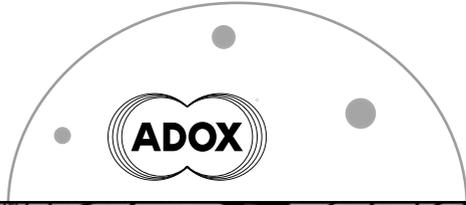


ADOX CMS 20 Ultrahigh-Resolution-Film

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

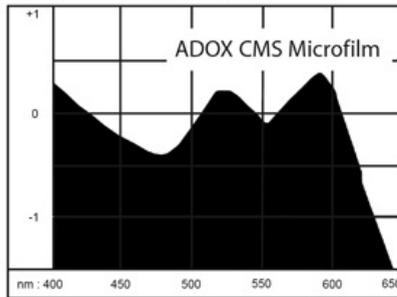


ADOX CMS 20 and ADOTECH III

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 chemistry system which leads to superior results.

Spektrale Empfindlichkeitsverteilung:
Spektral Sensitivity Curve:



Technical Data ADOX CMS 20 II

Type:

Silver halide recording material with an anti-halation layer inbetween emulsion and filmbase yielding highest sharpness and resolving power. Light cannot diffuse within the base layer.

Filmspeed for normal contrast situations: ISO 12/12°.

Filmspeed for reduced contrast situations: ISO 20/14°

Exposure to 20 ISO requires a dedicated development and such has to be held the same over the entire film length

Spectral sensitivity: Orthopanchromatic.

Grain-Size:

RMS at density 1,0 und a focal opening of $25\mu = 14$.

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.

Reciprocity 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)

Filmbase 35mm and 120 film: Clear Polyester with 100 micron

Filmbase Sheetfilm: Clear Polyester with 130 micron

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! If you cannot set other speeds than 25 ASA check if you can override the exposure by 1/3rd f-stops (this is usually possible). 20 ASA equals 1/3rd stop less than 25 and 16 ASA equals 2/3rds of a stop down.

Processing of ADOX CMS 20 in ADOX ADOTECH III Developer (100 ml PE-HD bottle)

(ADOTECH III has improved keeping properties over ADOTECH I and II so the refilling of the bottle with water has become obsolete. Instead of this we recommend the use of protective gas or squeeze the bottle in a way that no air is left inside)

Processing of 2 films in 500ml of working solution (Jobo Tank)

Mix 500ml from 50ml of concentrate.

Dilution 1+9.

With the working solution of 500ml 2 rolls of film (120 or 35mm) can be processed (one after the other).

The overall capacity of the 100ml bottle is thus 4 rolls of film.

Increase the developing time by 10 to 15% for the second roll to be processed in the working solution.

Developing time 35mm film exposed to 12 ASA, dilution 1+9, 20°C: **8 Minutes.**

Developing time 120 film exposed to 12 ASA, dilution 1+9, 20°C: **9 Minutes.**

Developing time 35mm film exposed to **20 ASA**, dilution 1+9, **24°C: 7 Minutes.**

Developing time 120 film exposed to **20 ASA**, dilution 1+9, **24°C: 8 Minutes.**

If stored in a completely filled (no air left) glass bottle the working solution can be **kept for 4 weeks.**

Thus you do not need to process the second roll of film on the same day like with ADOTECH II.

Processing of 2 films in 600ml of working solution (Various Tanks)

In case your tank does not fully cover a rollfilm with 500ml you can dilute the developer higher (1+11) in order to get 600ml of working solution. Your developing times need to be adjusted in this case.

Developing time 35mm film exposed to 12 ASA, dilution 1+11, 20°C: **10 to 10,5 Minutes.**

Developing time 120 film exposed to 12 ASA, dilution 1+11, 20°C: **11 to 11,5 Minutes.**

Developing of 15 sheets of 4x5 Film in 1000ml of working solution

Mix 1000ml of working solution using the entire bottle of 100ml.

We recommend for sheetfilms tray development with a constant slight agitation.

Tilt the tray gently from each side (not just from one side).

Process each sheet separately. After the 8th sheet the developing time needs to be slightly increased by 10 after the 12th sheet by an additional 5% (yielding a total of 15% to the standard developing time).

Developing time sheetfilm exposed to 12 ASA, dilution 1+9, 20°C: **9 Minutes.**

- Agitation: First half minute ongoing then once every minute 1 tilt. Tilt the tank gently and try to imitate one rotation with your hand sideways. If you have trouble with inhomogeneities (especially around the perforation holes of the 35mm film) agitate more slowly and more steadily. 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 too low increase the development time slightly. 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 regularly 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 recommend 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.

Thoroughly clean your tanks after each use. We recommend a separate clean tank just for the Adotech procedure. Do not only rinse your tank. Clean it with a brush or a sponge thoroughly after washing and wipe it dry with a paper towel before developing a new film.

In areas with a high fluorine / chlorine content in the water you need to mix ADOTECH II with distilled water otherwise inhomogenities can occur.



Characteristics of ADOX ADOTECH III 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 shadow differentiation without negative 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

Important notice: CMS 20 and ADOTECH are to be considered a closed imaging system. CMS 20 is not a „regular“ film desigend to produce halftones (greyscales) in any reducing agent. The ultrahigh resolucion of this imaging system is based on the monodisperse ultrafinegrain emulsion of this film and the special developing technique used in ADOTECH. This is the reason why you cannot develop CMS 20 in just any other developer.

The inventors of ADOTECH 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 reaosns we cannot give any technical support for other developers but ADOTECH.

Produkt History ADOTECH:

From 2005 bis 2012 ADOTECH to be used with 35mm CMS 20 (without any adition of „I“ or „II“)

From 2012 ADOTECH II (50ml glass bottle with remark „II“) to be used with CMS 20 Typ II 35mm-, Roll- and sheetfilms. New developing times in comparison with ADOTECH.

From September 2013 ADOTECH II in 100ml round PET bottles in order to protect the developer from re-crystalization.

Different mixing instructions apply to this product in comparison to the glass bottle versions!

From March 2016: ADOTECH III in der PE-HD square shaped bottle with extra gas-barrier layer.

New mixing and new developing times in comparison to ADOTECH II.

Several improvements:

-Improved prevention of inhomogenities in large homogenous areas on the 120 and sheetfilms.

-Better keeping properties- the refilling with water becomes obsolete.

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