

Fire affected photographic materials

What effect does excessive heat have on photographic materials?

1. Motion picture films and negatives

Heat will cause the emulsion (image carrying layer) to become very sticky and it may adhere to any adjacent surfaces. The emulsion may also shrink, distort considerably or crack as a result. On colour materials the colour dyes may change colour or fade. Black and white materials are less susceptible to fade.

The base of the film may also shrink or distort as a result of heat. If the base of a motion picture film shrinks excessively it can no longer be projected. All film materials manufactured within the last 50 years are on *safety bases* and will not continue to burn once the source of heat is removed.

2. Prints

Heat will again cause the emulsion to adhere to adjacent surfaces and possibly shrink and crack.

The base of the print may be paper, plastic coated paper or plastic. All these bases may burn if sufficient heat is applied. At lower temperatures the bases may distort or crack. In any event the bases will become more fragile and the emulsion may lift from the base.

NATIONAL FILM & SOUND ARCHIVE

A U S T R A L I A

What other problems may occur as a result of a fire?

1. Water damage is a severe problem. Photographic emulsions are made from gelatin which is very sensitive to water. The emulsion will swell and become sticky if it is exposed to water and will stick firmly to adjacent surfaces, if an adjacent surface is also gelatin (*e.g.* another print) then the two gelatin surfaces will bind tightly. If the object is left damp for any extended periods of time then mould or other form of biological attack is very likely.
2. Physical damage is very likely to occur due to poor handling. Photographic materials are very easily scratched or damaged. Photographic materials should be left in any protective cases, albums etc until full recovery operations can begin.
3. Smoke and dirt will adhere to the surface of the emulsion and base and may become firmly embedded in these. Additionally there may be slower chemical reactions between the smoke/dust and parts of the photographic object. Acids will accelerate the fading of colour dyes and cause the base plastic to decompose.

Can photographic materials be recovered?

The physical effects may be reduced or removed, however often the actual image is damaged in a way that cannot be easily recovered. The length of time between the disaster and commencement of recovery can be crucial, especially if water is involved.

Some success has been achieved after other bushfire incidents.