

18 CHARRED DOCUMENTS

A document that has become blackened and brittle by burning or exposure to excessive heat is classified as charred document. Accidentally burnt documents or those intentionally destroyed are referred to the forensic laboratories for restoration and decipherment of writings on them. Burnt documents being highly fragile do not usually remain in their original shape and get broken into small fragments. Curling is also observed around edges. It is, therefore, necessary that utmost care should be taken in handling, preserving and transporting the charred documents to the forensic laboratories.

Charred document can be expected in cases of accidental fire, intentional fire and arson, insurance and financial matters and leaking of examination papers, etc.



Figure 18.1: A case of arson–Burning of important bank documents

18.1 Crime Scene Investigation in Case of Charred Documents

18.1.1 Crime Scene:

A place where the alleged crime/fire and arson has taken place or an effort made by an accused to destroy the evidence through burning.

18.1.2 Crime Scene Investigation:

It is thorough inquiry of the crime by conducting systematic study of various investigative methods. It involves recovery of physical and documentary evidence for the purpose of identifying and arrest of perpetrators for their prosecution. Crime scene investigation shall technically commence upon the arrival of first responder and conclude with the lifting of security cordon and release of crime scene by IO.

18.1.3 Basic Guidelines for Carrying out Search at Scene of Crime

- (i) Defining control boundaries of a SOC for protecting and securing it.
- (ii) Preserving a SOC with minimum possible contamination and disturbance of any physical clue material.
- (iii) Safety and security of all persons in and around a SOC.
- (iv) Taking custody of records, maintaining details of documents available or stored at the scene of crime.
- (v) Restriction on the number of persons accessing a SOC and recording their movement.
- (vi) Controlling, identifying, verifying and removing persons from a SOC after proper and self-attested recording of their details, names, addresses, contact numbers, etc.
- (vii) First remove unburnt evidential documents from scene of crime and take them in your custody.
- (viii) Always photograph the document on arrival at the scene of crime, on 'as it is and where it is' basis to prove in the court that these documents were actually recovered from the scene of crime.

18.1.4 Pre-Search/Planning and Preparation to Examine Scene of Offence

Assessment of the place where search is to be conducted for collection of physical evidence. It may be in the form of closed or open places.

Response to a Crime Scene

Procedure for the first police officer visiting the crime scene

- (i) Call for the fire brigade.
- (ii) Assistance to the injured person, if any, should be extended first.
- (iii) Identification of witness and suspect.
- (iv) Securing the crime scene.
- (v) Documenting the condition of crime scene.
- (vi) Identify and protect the documentary and material evidence.
- (vii) Photography/videography of SOC.

The investigation officer visiting the crime scene subsequently should:

- (i) On arrival contact the police officer who had attended the crime scene initially.
- (ii) Collect evidence at crime scene.
- (iii) Record statements of eye witness and suspects.

18.2 Crime Scene Kit for Collection of Evidence

- (i) Forceps/flat bladed tweezers
- (ii) Spatula
- (iii) Cardboard boxes
- (iv) Cotton
- (v) Corrugated boxes
- (vi) Polyvinyl acetate solution(2-3 per cent in acetone)
- (vii) Sprayer
- (viii) Safety gloves
- (ix) Thin glass sheets
- (x) High intensity light source
- (xi) High resolution camera (minimum 16 megapixels)
- (xii) Humidifier, if available
- (xiii) Dehydrator, if available
- (xiv) Marking pens of different colours
- (xv) Plastic tape
- (xvi) Staplers

18.3 General guidelines for Carrying out Search at Scene of Crime

- (i) Collection of all possible, relevant and authentic information required for making assessment about the planning and preparation for search.
- (ii) Assessment of all available information for planning and preparing the correct time of search.

18.3.1 Constituting Team Required for Handling the Crime Scene

- (i) Outer cordon
- (ii) Inner cordon
- (iii) Search and seizure of physical clues
- (iv) Rescue of victim, if any
- (v) Handling of eye witnesses
- (vi) Handling of suspects/accused

18.3.2 Composition of Team Members and their Role

- (i) Search should be led by a senior police officer.
- (ii) Role of an informant/source/identifier must be clearly identified for an operation.
- (iii) The roles and responsibilities of police and non-police personnel must be clearly defined.

18.3.3 Briefing Team Members

Members of a search team including non-police personnel should be informed on following key points:

- (i) The purpose of search
- (ii) The outlines of the plan of action
- (iii) The role and responsibilities of teams and its members

18.3.4 Protection and Security of SOC

The scene of crime should be protected with utmost care and precautions such as cordoning of the area, restricting entry/exit and access to unauthorized persons, disallowing tampering of evidence, photography and videography of the crime scene.

All telephones and mobiles must be seized.

18.3.5 Documentation of the Crime Scene

Location of charred documents found at the scene should be documented by way of sketching and photography.

18.3.6 Photography of the Crime Scene

After the crime scene is secured, photography of charred document is required for their location and neighbourhood. Close up photography of charred document using high intensity light source and high resolution camera is also required.

18.3.7 Medical Assistance

In case of accidental fire, immediate assistance/first aid should be extended to the burnt or injured person and then shifted to the nearest hospital for further treatment.

18.3.8 Search for Evidence

The search team should be divided into sub-teams which should systematically start searching the place from one end to another in each room/open space depending upon the nature of a case.

Three types of evidence may be found at a SOC, namely

- (i) Documentary evidence
- (ii) Forensic evidence
- (iii) Material evidence

18.3.9 Documentary Evidence

- (i) Registers carrying details such as money transaction, visitors, personal details of victims, tasks assigned to people connected with the case
- (ii) Letters/memos
- (iii) Marriage certificates
- (iv) Contact diaries/business cards
- (v) Business related registers/papers
- (vi) Account related registers
- (vii) Property documents



Figure 18.2: Charred document at crime scene

Courtesy: A.K.Bapuly

- (viii) Employment papers
- (ix) Identification documents (passport, ration card, voter's card, aadhaar card etc.)
- (x) Educational documents
- (xi) Bank documents
- (xii) Copies of leaked examination paper

18.3.10 Material Evidence

- (i) Material used for fire (fuels like kerosene/petrol/diesel, etc.)
- (ii) Matchbox/lighter/electric wires, heaters, etc.
- (iii) Computers, desktop, laptop, palm top floppies/CDs/pen drives
- (iv) Mobile phones
- (v) Video or still cameras
- (vi) CCTV footage

18.4 Procedure for Handling and Transportation of Charred Documents at the Scene of Crime

- (i) Protect the crime scene.
- (ii) Switch off the fans and close the windows of the room in case of indoor crime scene. This will restrict flow of air and thereby burning of materials.
- (iii) Do not disturb the container in which the document is burnt until and unless the container is transported to the laboratory.
- (iv) Stabilize the charred mass as far as possible using polyvinyl acetate in acetone solution (2-3 per cent) by spraying it gently over the charred masses as the charred documents are highly fragile.
- (v) When there is a heap of charred mass, try to procure partially burnt documents from the inner middle part of the heap as unburnt documents may be available due to lack of oxygen/incomplete burning.
- (vi) Do not try to remove the pages of stacks of paper. Lift them as it is. Scattered pages should be lifted using spatula and transfer to the glass sheet. Keep cotton over it and then transfer it to the cardboard box one by one.
- (vii) Get archival plastic sheets for preserving.

- (viii) Transport the cardboard box or corrugated box containing charred exhibits in the middle of vehicle as there is least chance of damage in this position.
- (ix) Great amount of patience is required to handle burnt or charred documents.

18.4.1 Collection and Packaging of Charred Documents

- (i) At the scene of crime, charred documents can be found in the dust bins, garbage bins in the backyard, inside the washroom or toilets, at the corner of the room, etc. In cases of arson, charred documents can be found in drawers, cupboards, racks, on the table or any other platform, on the floor or in the cupboard.
- (ii) Close up photography of the charred document with high resolution camera should be done on the spot.
- (iii) The destructive effects of heat are often closely associated to excessive dryness as a result, paper becomes very brittle and fragile. Not all papers can be regenerated after suffering (mutilating) from excessive heat.
- (iv) In case of wet and charred documents, transport it to a chilled storage to prevent mould formation.
- (v) To remove moisture, documents be put in dehydrator with controlled air circulation.
- (vi) Documents are dried, restored and refiled.

Table 18.1: Effect of temperature on writing

<i>S No.</i>	<i>Temperature at which the paper was burnt (°C)</i>	<i>Colour of charred paper</i>	<i>Visibility of charred writing</i>
1.	90	Brown	Legible
2.	280	Black	Invisible
3.	350	Grey	Visible
4.	400	Cream-White	Visible

18.4.2 Handling and Preservation of Charred Documents

In case the charred mass is difficult to handle, then it should be transferred to a glass sheet pre-treated with silicon water repellent. A solution of 3 per cent polyvinyl acetate in acetone (3 gm. polyvinyl acetate dissolved in 100 ml. of acetone) or methyl methacrylate (commercially known as Bed acryl 40 per cent) should be sprayed on charred mass carefully. This solution is a powerful adhesive and forms a transparent sticky layer on the document which gives strength to the charred mass.



Figure 18.3: Charred document stabilized by Polyvinyl Acetate solution

- (i) Charred document can be fixed either between two transparent sheets or between two transparent glass sheets to carryout examination.
- (ii) Practically all the charred documents consist of twisted fragile masses. These are required to be separated and flattened out for further treatment. No forceful attempt should be made to unfold the burnt papers or to flatten curled sheets.
- (iii) Charred document should be kept in humidified chamber for a while in order to replenish its moisture. This humidity treatment results in straightening of the curled edges.
- (iv) After this treatment the fragments of charred document would gain some weight to form body and lose brittleness. These pieces may now be directly placed on the glass plate for examination.

18.4.3 Transportation of Charred Documents

1. The charred pieces should be transported properly preferably in a corrugated box whose bottom is covered with layer of cotton and then with tissue paper to avoid any further damage.
2. To handle single burnt document, flat bladed tweezers are useful for picking up the fragments. When only parts of whole documents are found they may be segregated according to the area of container in which they are found and then placed in flat boxes. Stationary or candy boxes with top covers are very useful.
3. The charred pieces should be covered with a layer of tissue papers. Pack cotton wool in between charred document and the sides and bottom of the container forming a protective layer against damage. The box is then filled with loose cotton and followed by packing, sealing and transporting the box to the laboratory for examination.
4. Transporting the container undisturbed to the laboratory is a better option, wherever possible. Material of the original paper has much to do with the fragility of the charred fragments.



Figure 18.4: Charred documents

18.5 Seizure List

The seizure list and memo must be prepared on the spot itself in the presence of two independent witnesses. The witnesses should sign the lists and memos giving their full details including temporary and permanent addresses/contact numbers, etc., in their own handwriting including signatures with date.

18.6 End of Search

Before announcing formal termination of a search operation the officer-in-charge must ensure that:

- (i) Every potential witness is safely escorted to a police station with an officer deputed for the task.
- (ii) All evidence collected at a SOC is properly packed, sealed and marked.
- (iii) All memos are duly filled in and all other formalities with respect to procedures mandated by the law are completed.

18.7 Scrutiny of Evidence Collected from SOC

A thorough evaluation of the evidence collected from a SOC provides highly relevant and useful information for the purpose of investigation including crucial information about: -

18.7.1 Accused

- (i) Identity of the accused (photo, documentary record, testimony).
- (ii) Information and/or details about other members (photo, documentary record, testimony).

18.7.2 Crime

- (i) Items and/or description of items used for commission of crime (documents, instruments, etc).
- (ii) Nature of exploitation (record, testimony).
- (iii) Modus operandi.
- (iv) Commercial transaction (record, testimony).

18.8 Re-visit the Crime Scene if Required

It is possible that some pieces of charred paper or any other burnt material is lying stray in and around the crime scene. This must be properly searched and collected for further evidence.

18.9 Flaws by IO

- (i) Charred documents should be handled separately. In case of wet and charred documents, moisture contents should be reduced as advised.
- (ii) Transporting charred documents to a FSL after stabilizing them is a challenge for IOs which is not taken seriously.

18.10 Plan of Investigation

A thorough scrutiny of the evidence collected from SOC provides highly relevant and useful information for the purpose of investigation including crucial information.

A plan of investigation greatly facilitates:

- (i) The process of reconstruction of the scene of crime.
- (ii) Developing understanding about the sequence of events.
- (iii) Collection of relevant evidence in a systematic manner.

18.11 Submission of Charge Sheet/Complaint

Depending on the offences made out in a case, either a charge sheet or a complaint should be filed at the end of the investigation. A legal review of the charge sheet or complaint should be obtained from the concerned Public Prosecutor before submission.

18.12 Few Cases of Charred Document

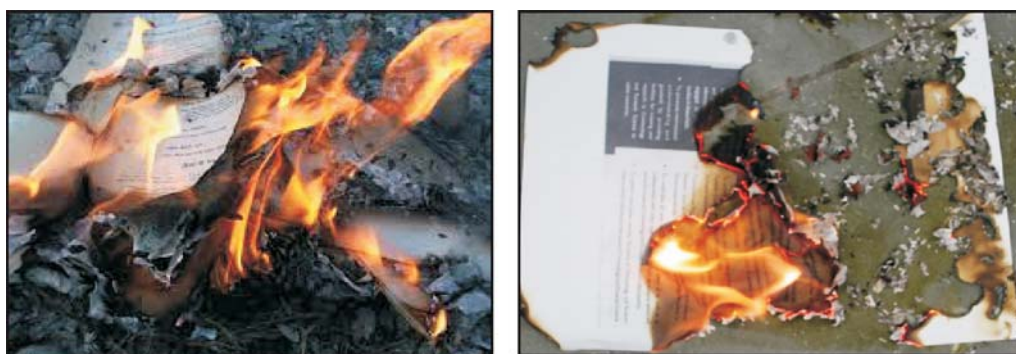


Figure 18.5: Various stages of charred documents. Some writings are visible and legible (right) on charred document whereas the invisible writings on completely charred documents (left) can be deciphered using IR photography on the spot.

18.13 Likely Queries to be Raised (may vary from case to case)

- (i) Detect and decipher the matter of the charred documents.
- (ii) Is there any signature on the charred document? If yes, can it be identified?
- (iii) Whether the document contains handwriting/printed or typed matter.
- (iv) Whether the charred mass is a currency paper or ordinary paper.
- (v) What is the size and colour of the burnt documents.
- (vi) Whether the paper of the charred document is same as that of partially burned document.
- (vii) Any other observation related to the case.

Note: Specific queries would depend upon the nature of the crime and exhibits seized at crime scene.

18.14 Relevant Sections

A instigates B to set fire to a dwelling. B, in consequence of the unsoundness of his mind, being incapable of knowing the nature of the act, or that he is doing what is wrong or contrary to law, sets fire to the house in consequence of A's instigation. B has committed no offence, but A is guilty of abetting the offence of setting fire to a dwelling, and is liable to punishment, provided for that offence under section 108 (c).

Section 425 of the Indian Penal Code—Mischief

425(a) X voluntarily burns a valuable security belonging to Y intending to cause wrongful loss to Y. X has committed mischief.

18.15 Case Studies

Case Study 1

A bank manager of a nationalized bank had defrauded huge amount from the bank by manipulating a number of bank documents. He then tried to destroy all the crucial documents by setting them on fire, so that the vital evidences are lost. A thorough search of the crime scene revealed presence of an intact gas cylinder at an unusual place, but all the valuable documents of the bank were found burnt/partially burnt around the area, along with the dead body of the bank manager. It was also found that the crucial documents relating to frauds committed by the

bank managers were also destroyed along with other bank instruments. Decipherment of some of the charred documents led to the conclusion that huge fraud was committed, involving large amount of transactions by the bank manager. The fire was intentional rather than accidental due to the presence of a gas cylinder. As the record room was closed and probably the manager could not escape in time, he died due to suffocation caused by poisonous gases released by the burning of documents/lack of oxygen, etc.

Source: A.K.Bapuly, Director, FSL, Odhisa

Case Study 2

In case of fire in an office, it was alleged that currency notes worth several thousands of rupees were accidentally burnt. When the ashes of charred documents were examined, it was found that only a few hundreds of

rupees could be accounted for from the remnants of charred one-rupee bundles. The correct estimate of the total loss could not, however, be estimated.

Source: A.K.Bapuly, Director, FSL, Odhisa



Figure 18.6: Crucial documents intentionally set on fire. Partially burnt documents can be seen

References

1. Albert S. Osborn, *Questioned Documents*, 2nd edn., Delhi, 1998.
2. Ellen Ellen, *Questioned Documents-Scientific Examination*, Washington, 1991.
3. Jan Seaman Kelly & Brian S. Lindblom, *Scientific Examination of Questioned Document*, London, 2006.
4. Ordway Hilton, *Scientific Examination of Questioned Document*, New York, 1982.
5. R.E. Jacobson, S.F. Ray, G.G. Attridge, N.R. Oxford, *The Manual of Photography-Photography and Digital Imaging*, 9th edn, UK, 2000.
6. Wilson R. Harrison, *Suspect Documents: Their Scientific Examination*, Delhi Indian Reprint, 2001.
7. Roy A. Huber & A.M. Headrick, *Handwriting Identification: Facts and Fundamentals*, Washington D.C., 2000.
8. Ron N. Morris, *Forensic Handwriting Identification: Fundamental Concepts and Principles*, New York, 2001.
9. Katherine M. Koppenhaver, *CDE, Forensic Document Examination: Principles and Practise*, New Jersey, 2007.
10. R.B. Sharma, *Forensic Science in Criminal Investigation and Trials*, 4th edn, New Delhi, 1999.
11. A.K. Bapuly, *Forensic Science: Its Application in Crime Investigation*, 1st edn, Hyderabad, 2006.