

Centre of Forensic Sciences
Fire Debris Acceptance Criteria and Packaging Guide

ACCEPTANCE CRITERIA

CATEGORY 1: Applies to fire cases involving serious injury or death, public safety, or possible linkage to more serious violent offences.

For cases involving:

- Homicide
 - Attempted Murder
 - Death Investigation
 - Arson - Disregard for Human Life (*with serious injuries*)
- CFS Scientific advisors will assess relevant information provided by submitter(s) to determine the items accepted for each case and will discuss with submitter(s) when necessary.
 - Item acceptance for each case will apply across all involved submitting agencies.
 - Items from an accused or suspect will be considered on a case-by-case basis.

CATEGORY 2: Applies to assistance with determination of the origin and cause of the fire, and/or for investigative or litigative purposes.

For cases involving:

- Arson – Disregard for Human Life (*minor or no injuries*)
- Arson – Property

Maximum two items will be accepted for initial analysis^{1,2}

- Items are chosen by the submitter for ignitable liquids or hydrocarbon gases testing only.
- Contents of fuel containers may be considered depending on the investigative or litigative need.

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CATEGORY 2 continued

- Items from an accused or suspect will be considered on a case-by-case basis.
- **No items** will be accepted for cellulosic fibre identification or plastic identification.

Following release of the initial report, additional items may be considered for testing. These additional testing requests must demonstrate an ongoing investigative or litigative need.

- If comparison substrate samples have been collected, they may be considered for analysis depending on the initial report results.



¹ If glass Mason jars have been used to package samples, an empty comparison Mason jar will be accepted as part of the submission and not be counted as one of the maximum two. Analysis of the comparison jar will only take place if it is relevant for interpretation of the associated items.

² Acceptance of additional items may be considered based on case-specific circumstances and discussion with a Chemistry Scientific Advisor.

CATEGORY 3: No items will be accepted for Arson – Property cases where one or more of the following potential scenarios apply:

- Clear video surveillance is available that demonstrates a fire has been deliberately set
- Stolen/abandoned vehicle fires
- Damage or attempted damage to structures not intended for human occupancy (fences, dumpsters, etc.)
- Unexpected/out of place fuel containers located near the origin of the fire.

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Type of Sample	***Required***	Recommended
<p>Fire Debris</p>  <p>Security-sealed Mason jar</p>	<p>Use Glass Mason jars with metal cap and ring, except for larger items and liquid samples (see below).</p> <p>If alcohols, solvents or lacquer thinners are suspected, it is recommended that glass Mason jars are used.</p>	<ul style="list-style-type: none"> - Leave air space for sampling (approx. ¼ full) - Ensure the mouth of jar is clean of debris, and that the metal ring and lid are tightly sealed - Apply numbered, tamper-proof security seal to jar - Place protective netting over jar - Seal jar in a nylon bag if the item has a noticeable petroleum odour - Submit an empty jar for comparison purposes
<p>Large Items (Any items that cannot fit into a 1L Mason jar)</p>  <p>Swan neck seal</p>	<p>Use only specialty nylon bags</p> <p>Garbage bags, paper bags, Ziploc bags, & standard police evidence bags are not suitable for retaining volatile ignitable liquid vapours. Items packaged in these types of bags will not be accepted for analysis.</p> <p>If alcohols, solvents or lacquer thinners are suspected to have been used as accelerants, use glass Mason jars only.</p>	<ul style="list-style-type: none"> - Leave air space in bag to allow for sampling - Seal the bag using one of the following methods: <ul style="list-style-type: none"> ○ “Swan neck” seal: twist neck of bag, fold over and secure with cable-tie or tape. Seal opening of nylon bag with duct tape. ○ Fold the opening of the bag over on itself at least three times and seal with duct tape. - Double-bag the item if it is heavy, very wet, has sharp edges or has a strong petroleum odour - Items in bags should be small enough to fit into a conventional microwave
<p>Liquids</p>	<p>Liquids must be received upright with no visible signs of leakage. Ensure that lids are closed tightly.</p>	<ul style="list-style-type: none"> - Use Glass vials (20mL) with a foil lined lid - Ship liquid items separately from other items - If a Mason jar must be used to package a liquid, submit no more than 50mL (~1/4 cup), and seal the jar in a nylon bag to prevent leakage.
<p>Soil / Vegetation / Food</p>	<p>Refrigerate as soon as possible to reduce the possibility of bacterial action</p>	
<p>Lung and Biological Tissue</p>	<p>Use only glass Mason jars with a metal cap and ring</p> <ul style="list-style-type: none"> - Jars must not be more than ¼ full - All lung submissions must have an analysis request for either <u>ignitable liquids</u> and/or <u>hydrocarbon gases</u> (such as natural gas and propane) 	<ul style="list-style-type: none"> - Submit an empty jar for comparison purposes
<p>Clothing</p>	<p>Suspect or victim clothing should be packaged in glass Mason jars or specialty nylon bags.</p> <p>Suspect clothing should be stored and shipped in separate boxes from items recovered at the scene, including any items associated with a victim.</p>	<p>Suspect clothing should be packaged within 24 hours of the occurrence. If clothing was packaged after 24 hours, contact CFS Chemistry to discuss suitability for examination.</p> <p>Victim clothing with biological fluid or tissue present should be refrigerated as soon as possible.</p>

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Comparison Samples:

Whenever possible, an unburnt/unused comparison sample of debris (e.g. unburnt carpet sample, wood, etc.), or of a substrate used to collect a liquid (e.g. a paper towel wipe), should also be submitted for analysis. This will help to account for contributions made to the analytical results by the debris and substrate materials.

Packaging - Supplier Information:

Mason Jars: Any retail kitchen or hardware store - (1L size is recommended)

Please Note: - Jars should be cleaned by rinsing with hot water (no soap) and placed upside down to dry away from potential sources of ignitable liquid vapour.
- Clean jars should be stored with their lids-on until they are used.

Specialty Nylon Bags: Standard size is typically 12" x 18"

Please contact the CFSCChemistry.Scientific.Advisor@ontario.ca if you need assistance sourcing these bags

Glass Vials with foil-lined lid (20mL size):



Available for purchase from most lab supply companies.

Protective netting:

Polynet protective netting 2" to 4" diameter.



For more information/guidance, please contact the CFS Chemistry Scientific Advisor:

CFSCChemistry.ScientificAdvisor@ontario.ca
647-329-1500