BIOLOGICAL EVIDENCE STORAGE CONDITIONS

Technical Working Group on Biological Evidence Preservation

SHORT-TERM STORAGE CONDITIONS

Type of Evidence	Frozen	Refrigerated	Temperature Controlled	Room Temperature
Liquid Blood	Never	Best	Less than 24 hours	
Urine	Best	Less than 24 hours		
Dry Biological Stained Item			Best	Acceptable
Wet Bloody Items (if cannot be dried)	Best	Acceptable	Less than 24 hours	
Bones	Acceptable		Acceptable	Acceptable
Hair			Best	Acceptable
Swabs with Biological Material		Best (wet)	Best (dried)	
Vaginal Smears			Best	
Feces	Best			
Buccal Swabs			Best	Less than 24 hours

Sources: *Liquid Blood*—Farkas et al. 1996; Austin et al. 1996; Visvikis, Schlenck, and Maurice 2005; Gino, Robino, and Torre 2000; Ross, Haites, and Kelly 1990. *Urine*—Gino, Robino, and Torre 2000; Prinz, Grellner, and Schmitt 1993; Benecke 2004; Elliott and Peakman 2008. *Dry Biological Stained Items*—Gino, Robino, and Torre 2000; Kobilinsky 1992; Lund and Dissing 2004; Sjöholm, Dillner, and Carlson 2007; Aggarwal, Lang, and Singh 1992. *Wet Bloody Items*—Kanter et al. 1986. *Bones*—Kobilinsky 1992. *Hair*—Steinberg et al. 1997. *Vaginal Smears*—Gill, Jeffreys, and Werrett 1985. *Feces*—Benecke 2004. *Buccal Swabs*—Steinberg et al. 1997; Sigurdson et al. 2006.

LONG-TERM STORAGE CONDITIONS

Type of Evidence	Frozen	Refrigerated	Temperature Controlled	Room Temperature
Liquid Blood	Never	Best		
Urine	Best			
Dry Biological Stained Items			Best	
Bones			Best	
Hair			Best	Acceptable
Swabs with Biological Material			Best (dried)	
Vaginal Smears			Best	
Feces	Best			
Buccal Swabs			Best	
DNA Extracts	Best (liquid)	Acceptable (liquid)	Acceptable (dried)	

Sources: *Liquid Blood*—Farkas et al. 1996; Austin et al. 1996; Visvikis, Schlenck, and Maurice 2005; Gino, Robino, and Torre 2000; Ross, Haites, and Kelly 1990. *Urine*—Gino, Robino, and Torre 2000; Prinz, Grellner, and Schmitt 1993; Benecke 2004. *Dry Biological Stained Items*—Gino, Robino, and Torre 2000; Kobilinsky 1992; Lund and Dissing 2004; Sjöholm, Dillner, and Carlson 2007; Aggarwal, Lang, and Singh 1992; McCabe et al. 1987; Kline et al. 2002. *Bones*—Kobilinsky 1992. *Hair*—Steinberg et al. 1997. *Vaginal Smears*—Gill, Jeffreys, and Werrett 1985. *Feces*—Benecke 2004. *Buccal Swabs*—Steinberg et al. 1997. *DNA Extracts*—Yates, Malcolm, and Read 1989; Dissing, Søndervang, and Lund 2010; Halsall et al. 2008; Kline et al. 2002; Sigurdson et al. 2006.

KEY DEFINITIONS

Short-Term Storage: Storage of evidence from the time collected to reception by property room personnel. The Working Group recommends that temporary or short-term storage refer to any location that can hold evidence for up to 72 hours.

Long-Term Storage: A location that is designated to secure evidence or property items in the custody of an agency until the items are diverted, sold, released, or destroyed. The Working Group recommends that long-term storage refer to any location where evidence may be stored for more than 72 hours.

Frozen: A storage condition in which the temperature is maintained thermostatically at or below –10°C (14°F).

Refrigerated: A storage condition in which the temperature is maintained thermostatically between 2°C and 8°C (36°F and 46°F) with less than 25% humidity.

Temperature Controlled: A storage condition in which temperature is maintained thermostatically between 15.5°C and 24°C (60°F and 75°F) with less than 60% humidity.

Room Temperature: A storage condition in which the temperature is equal to the ambient temperature of its surroundings; storage area may lack temperature and humidity control methods.

National Institute of Standards and Technology
U.S. Department of Commerce

NIJ National Institute of Justice

Note: Guidance on additional biological evidence types and full citations can be found in the full text version of *The Biological Evidence Preservation Handbook* (http://www.nist.gov/manuscript-publication-search.cfm?pub_id=913699).