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# 企业EHS管理与技术系列专题研讨会 ——LOTO上锁挂牌

2013年12月6日

主办单位： 南京大学-ISC环境、健康与安全中心

合作机构： 玛斯特锁贸易（上海）有限公司

支持单位： 南京大学环境规划设计研究院有限公司



# LOTO Program Sharing

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# Purpose and Scope

## 目的 及范围

The purpose of this program is established requirements and performance objectives for procedures, techniques, designs and methods that protect personnel where injury can occur as a result of the unexpected release of hazardous energy.

上锁挂牌程序主要目的在于，避免在维修过程中，危险能量突发性释放造成伤害，从而保护人身安全的方法。

Application: This standard applies to, but is not limited to, activities that are performed on a machine, a piece of equipment, a process or circuit.

本标准适用于，但不限于，在某机器上、设备上、流程中或电路进行的活动中。



# Types of Lockout/Tagout Devices

## 上锁挂牌装置的种类



Authorized Individuals must have personal LOTO locks and red tags, or they must have access to locks and tags in a central location.

授权人员必须要有并容易得到个人锁和LOTO牌

## Individual LOTO Lock (Life Lock)

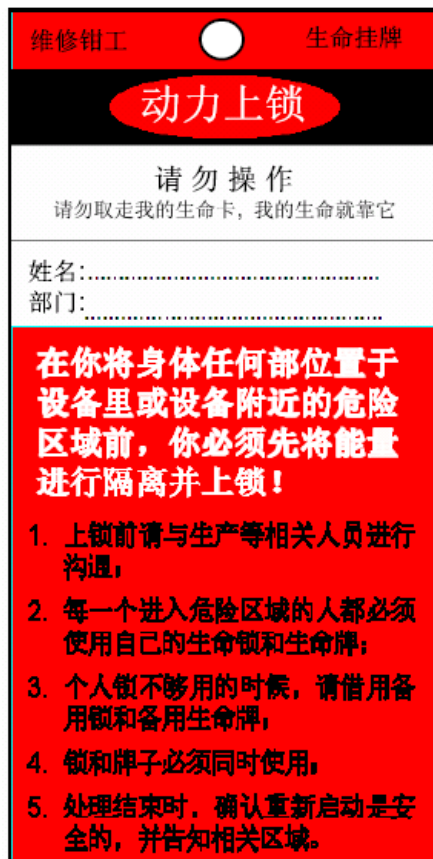
### 什么是上锁挂牌个人锁 (生命锁)

- LOTO lock are individually assigned (personal lock) to authorized individuals, or can be obtained from a central repository of LOTO devices, whereupon they become personal locks while in use by an individual.
- LOTO locks must be Distinct from other locks at the location, have only one key, and must be used for LOTO only.
- 个人锁被分配给授权人员，或从锁定/加标装置的储藏中心取得
- LOTO锁必须与其它的锁有明显的区别，并且LOTO锁具只允许有一把钥匙，LOTO锁不能挪做它用

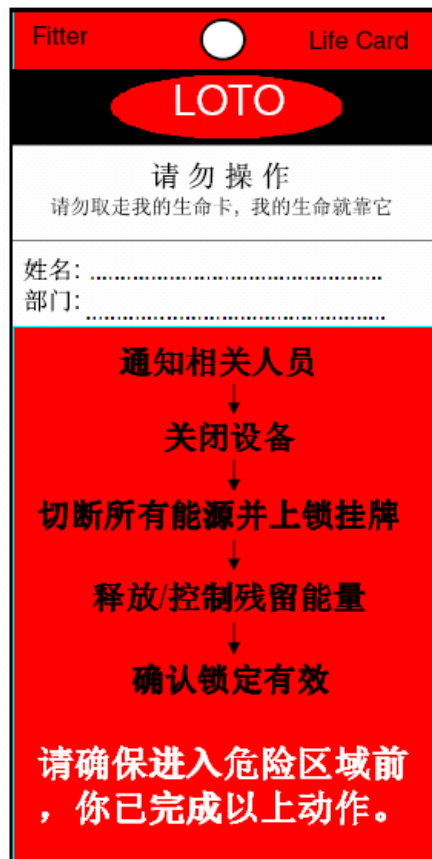


# Types of Lockout/Tagout Devices — Life Tag

## 上锁挂牌装置的种类- 生命牌



正面



反面

红牌-生命牌

(格式供您参考)

生命牌是授权人员配合生命锁一起使用。目的是授权人员设备上做维护时，警示并告知操作人员勿操作或开启设备。

*标签本身不能作为隔离能量源的手段。*

# LOTO Placard

## LOTO 标牌

MACHINE NAME	LOCATION	MACHINE NUMBER	PLACARD NUMBER	LOTO PLACARD				
F181C Pair Cooling Pump	Directly below Stage 2 E-Coat Tank	F181C	PT-0001	Prep it    Lock it    Release it    Verify it				
				<b>ENERGY TYPE AND MAGNITUDE</b> kwh	<b>LOCKOUT LOCATION</b>	<b>ISOLATES: .....(or) BLOCKS: .....(or) DISEMPATES: .....</b>	<b>PROCEDURE FOR LOCKING OUT (or) RELEASING (or) DISSIPATING THE ENERGY:</b>	<b>VERIFICATION PROCEDURE</b>
1	415 Volts, 180 Kpa Fluid Pressure	E1	AT MOTOR AT GROUND LEVEL	ISOLATES ELECTRICITY TO THE PUMP	SWITCH OFF AND APPLY HASP AND ECPL LOCK	REMOVE TERMINAL COVER ON PUMP & USE MULTIMETER TO VERIFY ZERO VOLTS ACROSS EACH PHASE		
2	415 Volts, 180 Kpa Fluid Pressure	E1	AT E-COAT F180MCC1 CONTROL CABINET MEZZANINE LEVEL	ISOLATES ELECTRICITY TO THE PUMP	SWITCH OFF AND APPLY HASP AND ECPL LOCK	TURN SELECTOR SWITCH TO "LO CAL" & HIT START BUTTON. AMMETER SHOULD READ ZERO & ALL INDICATOR LIGHTS OFF		
3	E-COAT 180 Kpa	C1	GREEN HANDLE AT BASE OF E-COAT TANK	ISOLATES FLUID PRESSURE TO PUMP	SLOWLY TURN VALVE HANDLE TO CLOSED & APPLY LOCKOUT DEVICE AND ECPL LOCK	VERIFICATION IS A VISUAL CHECK THAT VALVE HANDLE IS CLOSED		
4	E-COAT 180 Kpa	C2	RED HANDLE AT BASE OF E-COAT TANK	ISOLATES THE RETURN LINE FROM THE E-COAT DUMP TANK	SLOWLY TURN VALVE HANDLE TO CLOSED & APPLY LOCKOUT DEVICE AND ECPL LOCK	VERIFICATION IS A VISUAL CHECK THAT VALVE HANDLE IS CLOSED		
5	E-COAT 180 Kpa	C3	ABOVE PUMP F181C AT GROUND LEVEL	ISOLATES PRESSURE TO THE PUMP	SLOWLY TURN VALVE HANDLE TO CLOSED & APPLY LOCKOUT DEVICE AND ECPL LOCK	THE GAUGE ABOVE THE PUMP SHOULD READ ZERO		
6	DE-IONIZED WATER, LOW PRESSURE	W1	D.I. WATER PIPE VALVE ABOVE THE PUMP	ISOLATES THE D.I. WATER FROM THE PUMP SEALS	SLOWLY TURN VALVE HANDLE TO CLOSED & APPLY LOCKOUT DEVICE AND ECPL LOCK	VISUALLY VERIFY THAT THE VALVE IS CLOSED		
7	E-COAT 180 Kpa	RC	DIRECTLY ABOVE PUMP	DISSIPATES STORED PRESSURE IN THE PUMP	STAND TO THE SIDE OF THE OUTLET AND SLOWLY OPEN THE RELEASE VALVE	SHOULD SEE SOME E-COAT RELEASED		
<b>HAZARD WARNINGS and ASSOCIATED MACHINES</b>								
HAZARD CATEGORY	ASSOCIATED EQUIPMENT NAME/ HAZARD LOCATION	HAZARD DESCRIPTION	SAFETY PRECAUTIONS					
<b>WHEN WORKING ON LIVE MACHINERY:</b> 1. Check the hazards in the zone you will be in and never place any part of your body where it can be injured 2. BEFORE beginning a repair or clearing a blockage, exit the machine and perform full ECPL lockout.								
TROUBLE SHOOTING MACHINES FOR TROUBLE SHOOTING								
Sign off	Engineering Sign-Off	Date:	/ /					





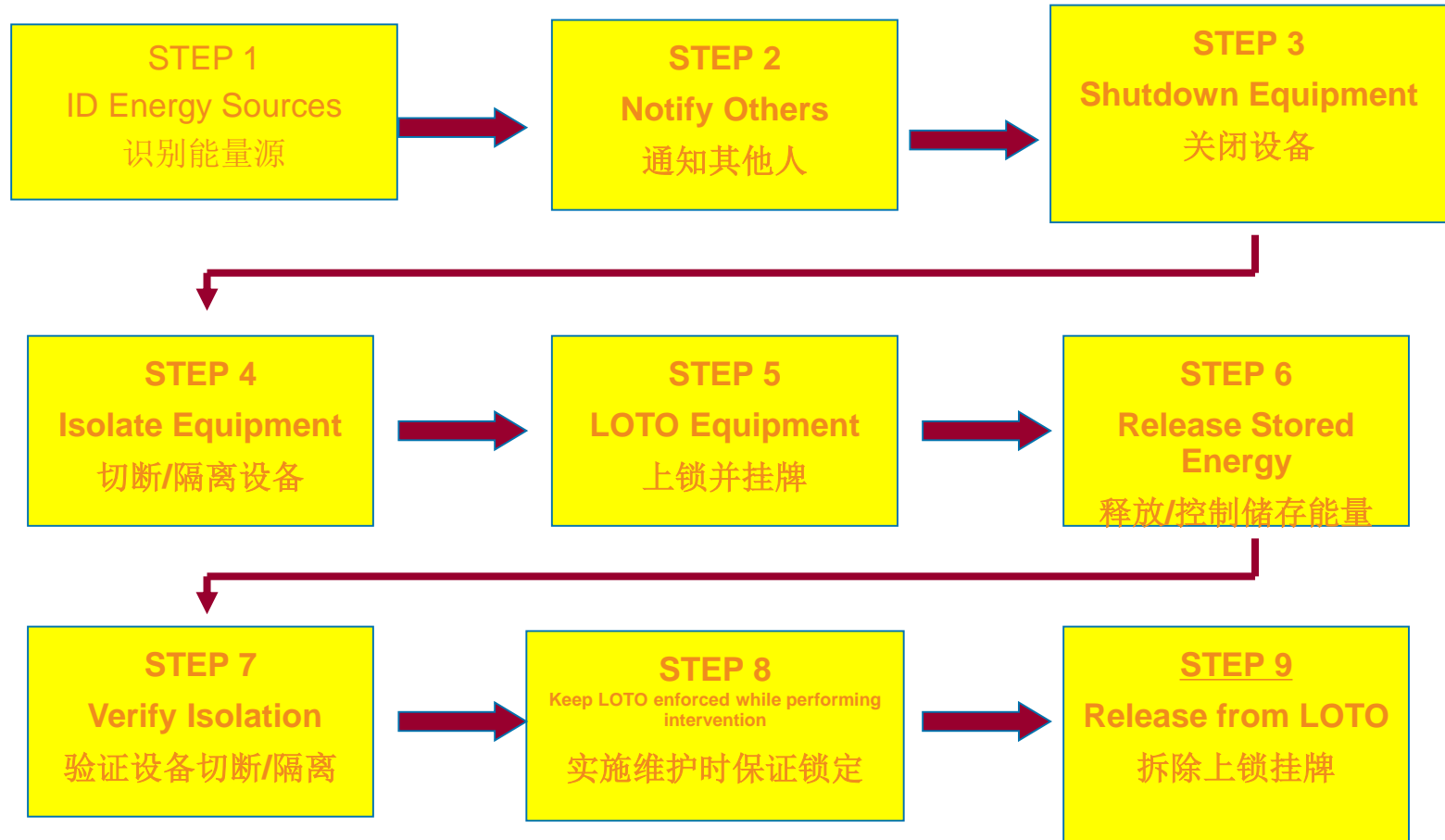
# LOTO Label

## LOTO 标签



# LOTO Procedure

## 上锁挂牌程序



# 职责和分工 Responsibilities

## LOTO Champions' Responsibilities

- In charge of the whole LOTO program based on PDCA process
- Establish LOTO procedure and work team to ensure:
  - = all equipments which need to apply LOTO have specified LOTO procedure (Placard);
  - = each plant has a latest name list of LOTO authorized people;
  - = all authorized people can get standard life locks/cards and devices;
  - = all authorized and affected people can get related training;
  - = employees can get latest LOTO documents;
- Conduct qualifying audit and periodic inspections;
- Enforce compliance with SG's LOTO program and apply strictly company disciplinary actions in case of violation.

## EHS Dept. Responsibilities

- Coordinate the LOTO program;
- Assist LOTO champion to conduct general training on LOTO methodology;
- periodical inspections
- Document control: general LOTO procedure, placards, audit/inspection records, training records, etc.
- Update & evaluate the LOTO program annually.

## Design & Installation Responsibilities

- Define specific LOTO requirements in specification and EHS study file before signing contract to ensure the LOTO function of equipment;
- Require contractors to apply LOTO during services.

## LOTO 专家的职责

- 对整个项目的PDCA过程负责
- 建立LOTO管理流程和项目推行小组并领导该小组以确保：
  - = 每台需要上锁挂牌设备都具有详细的上锁挂牌程序；（标牌）
  - = 每个工厂保有一份LOTO授权人员名单；
  - = 所有授权人员获取标准化的上锁挂牌所需锁具；
  - = 所有授权人员和受影响人员都得到合适的上锁挂牌培训；
  - = 员工能获取上锁挂牌程序的现行有效版本；
- 开展授权人员资格验证审核和日常检查；
- 强化执行SG上锁挂牌制度, 对违规者执行公司的纪律处罚规定。

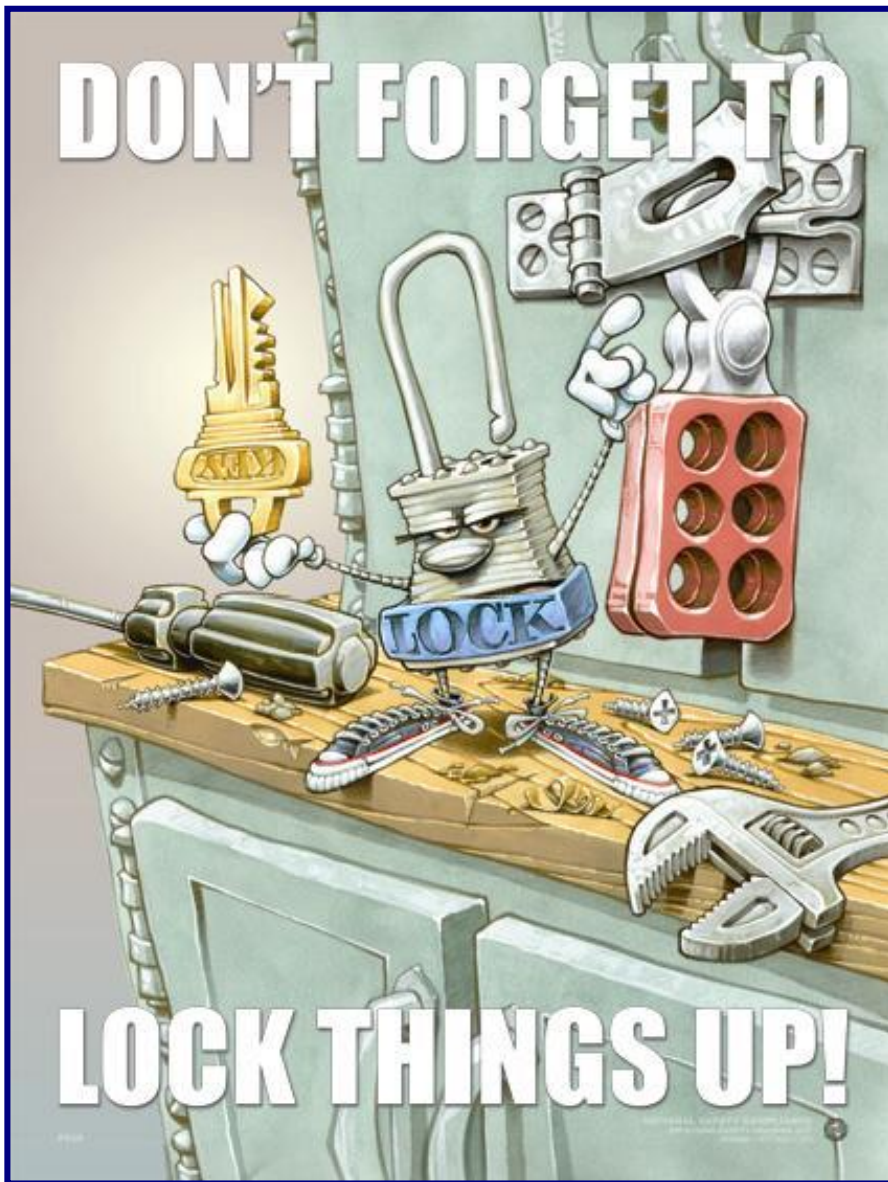
## EHS 部门职责

- 对上锁挂牌项目进行协调；
- 协助LOTO专家开展上锁挂牌的一般方法培训；
- 定期的抽查；
- 对公司总的LOTO程序文件和各个设备的具体的上锁挂牌文件（如LOTO标牌）
- 定期检查记录和培训记录进行存档管控。
- 开展年度的上所挂牌项目的评估并在必要时更新改进。

## 设计和安装部门的职责

- 在合同签订前必须在技术规范和EHS风险分析中阐明具体的上锁挂牌要求确保设备具备上锁挂牌的功能；
- 要求外包商在现场服务期间遵照实施上锁挂牌程序。

责任人 Responsible	过程 Process	输出文件 Output Files
LOTO专家 Champion	建立全厂/基地LOTO 推行小组明确职责 set up work team and define responsibility	项目推行组织机构图及小组成员名单 organization chart
LOTO专家 Champion	编制全厂设备LOTO项目计划 compile LOTO program plan for whole plant	详细计划 Detailed schedule
工作组 Work Team	根据计划按设备进行能量源识别、编制LOTO标牌，完成必要改造使设备满足LOTO能力 suvery energy, compile LOTO placard, conduct necessary alteration based on plan	能源识别表，现场标牌 Survey sheet, Placard
工作组 Work Team	实施培训，并对每个授权人员进行现场资质确认 Training and qualify authorized people	培训签到表，考试试卷；资质确认表 training record and test paper, qualify sheet
工作组 Work Team	配备锁具，发放生命牌和生命锁 Establish LOTO device station, distribute life cards and locks	锁具配发记录 life lock and card distribute records
工厂经理&EHS China EHS	审核已完成的设备和人员做项目验收 Selective audit	审核报告或会议纪要 Audit report or memo



Thanks  
for  
Attention

谢谢!  
欢迎合作!

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