

Indiana State Department of Health
Indiana FACE 96IN07101
Date: November 20, 1996

TO: Charles L. Barrett, M.D., M.S.P.H., Medical Epidemiologist
Epidemiology Resource Center

FROM: Richard L. Warren, Indiana FACE Investigator

SUBJECT: Truck Rental Service laborer dies when struck by lock ring from
exploded truck tire

SUMMARY:

On June 13, 1996, a 24-year-old male laborer (the victim) died from injuries sustained when he was struck by a lock ring from an exploding truck tire. The victim had begun work on replacing two left rear inside tube type two-piece split rim 10R22 truck tires for a corporation tanker trailer. The victim had completed inflating the new truck tire to 100 psi air pressure in the split rim cage. He subsequently rolled this first of two tires from the split rim cage 18 feet to the axle where he used a tire bar to leverage the 150 lb tire up onto the axle position. The victim had reached for the spacer ring and was holding it in both hands in front of the tire when the truck tire pressure exploded the lock ring outward forcing the spacer ring with great force into the victim's upper chest. The victim lost consciousness almost immediately and died of internal bleeding and chest injury.

The Indiana FACE investigator concluded that to prevent future similar occurrences employers should:

1. Ensure training is repetitive enough when performing non-repetitive tasks.
 - a)
2. Ensure rim flanges, rim gutters, ring bead surfaces and head area of tires are free of surface scale or flaked rubber.

INVESTIGATION:

The investigation of this work-related fatality was prompted by the Indiana Occupational Safety and Health Agency (IOSHA). Information was obtained from employer interviews, pictures and IOSHA. The employer has been in the

truck rental service for several years and has three work shifts. The company has a written safety policy that is posted on the wall behind the split rim cage. The victim had worked for the company two years. The victim was qualified for a grade #2 position that would have him qualified as a truck fueler and truck wash man, but also a tire replacement man with specific training for work on two-piece tube type split rim truck tires. The victim's training consisted of a one day hands on in-house training program July 27, 1995 on two-piece tube split rim truck tires. The victim took the manual home, did the homework, and submitted the test. However, co-workers stated they could not remember the victim changing one truck tire after his initial training. This was normally left to the senior tire man.

CAUSE OF DEATH:

The cause of death as determined by autopsy listed on the death certificate was cardiac contusion due to blunt trauma.

RECOMMENDATIONS AND DISCUSSION

RECOMMENDATION # 1: Employers should ensure training is repetitive enough when performing non-repetitive tasks.

DISCUSSION: The employer in this incident did not provide additional training as necessary to ensure that each employee maintains proficiency in servicing split rim wheels for both service and mechanical classifications in order to insure ongoing proficiency for such hazardous work. At no time since July 27, 1995, has the victim received retraining, refresher training, or any hands on training to ensure that he would have proficiency in his job task at hand. Since the fatal incident the truck rental service company no longer services split rim truck tires.

RECOMMENDATION # 2: Employers should ensure rim flanges, rim gutters, ring head surfaces and head area of tires are free of dirt, surface scale, and flaked rubber.

DISCUSSION: The wheel rim of the multi-split rim tube tire that blew out was found to have a one and one half inch wide band of rusty scale and metallic build up all around the circumference of the wheel rim directly inside the head flange and the new tire. OSHA regulation 29cfr 1910:177 (e) 3 states rim flanges, rim gutters, rings, bead seating surfaces and head area of tires shall be free of any dirt, surface rust, scale or loose or flaked rubber build up prior to mounting and inflation. Evidence suggests the victim made no effort to clean off rust and scale residue from the head flange side of the wheel rim. Evidence also suggests the victim did not use a nonflammable rubber lubricant that is required to be applied to bead and wheel mating surfaces before assembly of the wheel rim, unless the tire or wheel manufacturer recommends against the use of any rubber lubricant.

Rubber lubricant leaves a slick shiny residue for some time after application. The explosion of the truck tire caused a 36 inch long split in the side of the tire which could indicate maximum pressure recommended by the manufacture was exceeded.

According to the General Duty Clause of the Occupational Safety and Health Act (section 5 (a) 1), employers are required to provide a safe and healthy workplace for employees. To do so, employers must regularly survey the workplace to identify hazards. All identified hazards must be adequately addressed through engineering control measures or changes in work practices. Employers should instruct each employee in the recognition and avoidance of unsafe conditions. In this and similar situations, the employer may need to provide additional training to ensure employees understand the hazards and how to properly use equipment.

Richard L. Warren
M.S.P.H.
FACE Investigator
Epidemiology Resource Center

Charles L. Barrett, M.D.,
Medical Epidemiologist
Epidemiology Resource Center

What is the FACE Program?

FACE is one of many prevention programs conducted by the Indiana State Department of Health (ISDH). FACE stands for "Fatality Assessment and Control Evaluation." The purpose of FACE is to identify factors that increase the risk of work-related fatal injury. Identification of risk factors will enable more effective interventions to be developed and implemented. The FACE Program does not just count fatalities. It uses information gained from each fatality investigation to develop programs and recommendations aimed at preventing future occupational fatalities.

Who can you contact for additional information?

Indiana FACE Program
Indiana State Department of Health
1330 West Michigan Street
Indianapolis, IN 46206

TEL: (800) 487-0457 (Voice mail) or
(317) 383-6627
FAX: (317) 383-6871