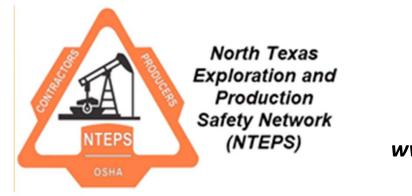


Hand Safety for Oil & Gas – Prepared For: NTEPS



www.NTEPS.com

Dironclad KONG IRONCLAD (200



Who wants to buy gloves ?

Who wants to buy "hand protection" ?

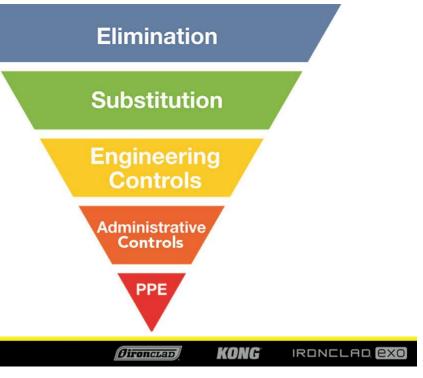




Why are gloves important ?



Hand Injuries -





HAND INJURY STATISTICS According to OSHA

• Most Hand Injuries:

Not Wearing Gloves (Bare Hand) Not Wearing the Right Glove

- 25% of Work Related Injuries Involve Hands & Arms
- OSHA Stats 100,000 Recordable, Non-Fatal Hand Injuries
- Average Cost to Employer of \$7000.00 per Incident.
- 275 non-fatal hand injuries per day (\$165 K per Day)
- Medical Costs: Small % of Total Cost of a Hand Injury → Production Interruption, Incident Investigation, Corrective Actions to Prevent a Re-Occurrence
- Estimate that North America Experiences 450,000 Non-Fatal Hand Injuries Annually.



Dironclad Performance wear

TYPES of HAND INJURIES

SOME TOOLS ARE

EPI ACEARI E

So They Last A Lifetime

Hand Injury Hazard Causes - 8 Categories:

- Lacerations (cuts)
- Fractures & Dislocations
- Soft Tissue Injuries
- Amputations
- Infections
- Thermal Burns
- High Pressure Injuries







How do you train your people on hand hazards, hand safety, gloves, and PPE limitations ?



Glove Tool Box Talks: Hazard Identification Rational for PPE – Value Limitations Testimonials



Glove - Holy Grail ?

Most Safety Professionals are Still Looking for the "Holy Grail of Hand Protection". One Glove for All Hazards !



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Job Hazard Analysis

JHA

Example

			lioves must follow the ANSI/ISE				
ited is not promoting a par	ticolar glove brand or manufactu	rec; we are promoting the pr	oper type of glove as identified	I by hazard assessment for th	er task		
ACCOUNT OF	10		an	S.	-1		
Chemical, Medical Emergencies, Catering and Light Duty	General Duty	High Cut and Puncture Potential	High Impact Potential	Chemical Handling	Heat Resistant		
No Cut Level Protection	Level A3-Cut NOTE-Level A3-Cut is the minimum requirement for Gameral Dury Givers. Givers and must mean the minimum requirement or sourced it. A pair of Gameral Duty Glaves must be with the employment all traces.	level /6 - Cut & Denthes	Level A2 - Cut, Puecture, Impact & Miczanie	Inst5. Chemical Promotion	Level 3 - Conductive Heat Resistance & Cut		
Protections Diamical, gams and doese	Protection: Cut	Protection: Out & Puncture	Protections Impact, Cat, Puncture & Abrasion	Protection: Chemical Permeation	Protection: Heat & Cut		
Dexterity: High	Deuterity: High	Devlerity: Medium	Deuterity: Linited	Destantly Limited	Device Hys Grinted		
Glove Description: Disposable Ninha, Povolar Anes, Norlie gloves are made with premium nitrile, making them lates free.	Glove Dewription: Denaral Use, reted for 1000 - 1499 grams to cut for light- medium cut heards.	Glove Description: Rated for 2200 - 2009 grains to cut for medium to heavy cut histerds.	Gleve Decorption: Rand for 4000- 4999 grams to cut for heavy cut haterfs. Impact resistance give, hard wearing, SOBM resistant.	Glave Description Chemical resistant for handling chemicals tach as acids, caustics, brives, soils ash and hydrocarbons.	Glove Description: A31M heat-lavel 2 medium duty gloves for conductive heat resistance up to 500° F (260° C). In contro terry or cances, some with Nithile or Keular.		
Sadication: Onicare and precise univities, light handling, sockaips, food handling, medical intergencies, blood or bookly holds	Autocation: General construction, general maintenance, fight and medium material handing, gipt duty rigging ectivities, working with small power tools, use of email hand stools, power, fingging mobile equipment, according (decembing ladders and stars,	Batterior Mechanical and stormal tasks, frequent handling of sharp and puncture prone stipict, rigging schlieter, working with power tools, general compruction, general maintenance.	Application: Job tasks requiring the use of hand toors, possible drift motors, handfling gips or or other heavy objects, opening and dooing process isdes, use of powerstoic tools and rigging activities. NOT FOR USE IN INTERCAREOUN AREAS	Autoation in tasks requiring and ust handling. Deensal and handling of happdous substances can be used in combination with other glows 10011: Enformed Safety Data Sheet for PET couplements required for all chemicals.	Applications Job tasks respecting protection from electric shock from welding early, famera, hot parts, sharp or flying metal, and arc ray.		

Training Roll-Out



When was a "detailed" JHA performed ? When was PPE selection last modified or changed ? When were your <u>Employees Trained</u> about changes ?



Glove - Holy Grail Myths



Cut Protection



• Impact Standard

- There is No ANSI Standard for Sizing
- ANSI has Evaluated Cut Gloves - Not Hand Hazards
- No Impact Standard -

(Refer Ironclad Testing)





Glove - Holy Grail Myths

• Leather Works



Chemical Gloves



• Heat Gloves

- Not all Leather Gloves are Equal in Performance
- Not all "Rubber" Gloves are Equal in Performance



KONG

IRONCLAD EXO

• At what temperature does skin burn ?

Hironclan



Traditional Work Gloves ?



Leather (Gunn) & Cotton (Clute)

Too Big and/or Too Small for Worker Hands –

Poor <u>Fit</u> on Hands

Not Enough Touch to Perform Task/Work

Poor Function on Job

Not Enough **Dexterity**

Too Many Bulky Seams



PPE* is Price Positioned not Task/Hazard Positioned

Ironclad Value -



Fit Durability Function

Dexterity





Dironclad KONG IRDNELAD EXO



Ironclad Hand Measurement

16 Points of Sizing

Value to Wearer and Company
 FIT – DURABILITY – FUNCTION – DEXTERITY
 (Better FIT to Eliminate "Bare Hand" Work)
 70 % of Injuries: Bare Hand or Wrong Glove

Thumb & Index Finger Reinforced Knuckle & Back of Hand (Finger Protection)

Ranchworx Goat Skin



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Ironclad Technology - TPR

Domain of hard block or hard particles

off, elastomeric

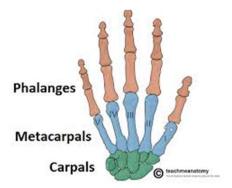
Thermal Plastic Rubber – TPR

Exo-Skeleton Hand Protection

Ironclad's KONG Technology Addressed "Back of Hand" Protection

(See TPR Image to right.)

(U of Wisconsin Testing Force Reduction of 80 %)







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KONG Development

KONG https://www.youtube.com/watch?v=E0E4F-I_iY4

2008 Off-Shore Injuries

- \$70,000 per "Smash" Incident
 - Cotton Corded Glove Standard
 - Adapted 2005 Innovations
- Original KONG
 - Meaning?









Ironclad IVE IVE Hand Awareness





IVE[™] Optical Technology: Extends the Field of Visual Recognition
Proven Maximum Impact Protection (U of Wisc)
Reflective Fabric - Nighttime Visibility



Ironclad IVE Sustainability



IVE Hand Awareness



INDI-HAD – Dotted Synthetic Leather
High Abrasion and Dexterity
Low Profile Impact Protection
LPI-OC5 – Open Cuff Cut 5 (ANSI A3)
LPI-CC5 – Closed Cuff Cut 5 (ANSI A3)



Styles -

- INDI-CCP Cotton Corded Palm
- INDI-HAD High Abrasion Dexterity
- INDI-KC5G A3 Nitrile Coated Impact
- INDI-RC5 Rigger Cut 5 (A5) Impact
- INDI-RIG DuraClad Palm Impact
- LPI-CC5 Hook & Loop Cuff (A3 1240)
- LPI-OC5 Open Cuff Style (A3 1240)





Ironclad – Seamless Coated

HPPE – High Performance Yarn

INDI-KC5



Strength, Durability, and Deflection can help Prevent Cuts/Lacerations.

Foam Nitrile Palm for Grip.



Dironclad KONG IRDNELAD EXO



Ironclad Value to Worker

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Problems with Traditional Materials & Construction



- Material wear in harsh work environments
 - Lacks protection & durability
- Seam construction and fatigue

Lacks durability and comfort inside & outside

• Glove decontamination and cleaning



Rigger DuraClad Style

- ✓ Fit and Comfort
- ✓ Dexterity to Perform
- ✓ Ability to Use Tools and Equipment w/Gloves-On
- ✓ Knuckle Protection
- ✓ Sweat Wipe
- ✓ Ability to Launder & Re-Use





Hi-Viz Impact/Anti-Vibration

Features & Advantages

FIT – DURABILITY – FUNCTION – DEXTERITY

16 Point Sizing for Fit & Dexterity

Embossed Synthetic Leather for Touch & Wear

Back of the Hand Knuckle Protection

Padded Palm for Handling Air (Pneumatic) and Electrically Powered Tools & Equipment

Fork Lift Tire Changing DuraClad Reinforced Finger Tips High Visibility Color System for Worker Awareness





Available: Black, Brown, Hi-Viz & Leather Goat

Dironclad KONG IRONELAD 200

Dironclad Performance wear

Coated Work Glove Materials nanical Property Chemical Resistance

Material: Mechanical Property

- 1. Natural Rubber: Grip and Cut Resistance
- 2. <u>PolyVinyl Chloride</u>: Abrasion/Wear Resist
- 3. <u>Neoprene</u>: Good Durability & Thermal
- 4. <u>PolyUrethane</u>: Durable, Won't Flake
- 5. <u>Solid Nitrile</u>: Snag, Abrasion, Tear

Chemical Resistant Or	characteristics al tubber wet grip cut resistance water based acids ketones ene some snag & puncture broad range of cher some chemical com or vinyl abrasion acids & caustics in concentrations buna rubber snag puncture solvents & grease oil & additives	als		Fits	Like A G	love						
Glove material	physical properties	chemical resistance characteristics	11	M	Vin	JUD .	ML					
			POLYETHYLENE			BUTYL						
		broad range of chemicals some chemical combinations	Dealieri potactice from common addi end bases Insepanoive Limited tear resistance	High density Tear Resistant Impoined density Cover protection density Provides Provides	Healthe Sarrby Sarrb	Sturdy Sturdy Rouachie Umited State Impointd docentry Const an extension Persoides Strang colds	Protection from orde sortery of devices devices Contact a liner suddr other glavis Good doctority Good doctority Good doctority Good doctority doctority					
PVC or vinyl	abrasion	acids & caustics in various concentrations	Axids Ortergrets Cocomposition Cocomposition Cocomposition Cocomposition Cocommitmed mogrets and	 Freed Akobala Organic coirds end benesi end benesis end benesis<td>Olix and grooses Anity, counties Anity, counties Altenhois Olivrineted solveets Poor protection from Strong axidaing agevits</td><td>ond bases • Noteholo • Addehodes • Kotoses • Kotose</td><td>Pist pancture mainteet Const pancture Const pancture Pistonet Pistonet Pistonet Pistonet Constant Pistonet Constant Pistonet Pistones Pistones</td><td></td><td></td><td></td><td></td><td></td>	Olix and grooses Anity, counties Anity, counties Altenhois Olivrineted solveets Poor protection from Strong axidaing agevits	ond bases • Noteholo • Addehodes • Kotoses • Kotose	Pist pancture mainteet Const pancture Const pancture Pistonet Pistonet Pistonet Pistonet Constant Pistonet Constant Pistonet Pistones Pistones					
(nitrile)	puncture abrasion	oil & additives petroleum products	solverts C	Choosing The	Accounts solverts Solverts Accounts Accounts Right Glove	e For The L	Esters Pace protection fram: Oak reconfactorer information					
	un.		N	• Your hends are the more Know which type to use Brands vary. Check ma Graphics used with persisten a www.icchemicsydgibiol.org for	e. Inufocturer recomme	-	Linoin Side					
								<i>Bironclad</i>	(fironcean)	Dironclad KONG	Dironerad KONG	() KONG IRDNELA

Mild Acids, Detergents, Ketones

Grease, Oil, Solvents ("ene" family)

Acids, Bases, and Chromic Acid

Broad Range of Chemicals

Resist Oil and Grease

Dironclad Performance wear

Ironclad Leather Technology Benefits

Skin Palms

- 1. Synthetic Leather
- 2. Cow
- 3. Pig
- 4. Goat
- 5. Deer



Syn Nylon – High Performance - Stable Price Point vs. Cowhide and Pigskin Cowhide – Abrasion & Wear Pig – Tan for Toughness & Pliability Goat – Great Dexterity. Soft & Pliable Even after Laundering Deer – Soft & Pliable (Expensive \$\$)



Ironclad Limitless Leather

ULD-IMPC5





360 Degrees of Cut Protection
ANSI A5 (2992 grams of cut score)
Case Hardened Leather Durability
Stays Supple & Flexible on Task
Longer Life Cycle on the Job
Flawless-Fit 13 Point Sizing
Worker Acceptance & Comfort



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Questions ?

There's not one glove from every task !

XTO Testing

JW Energy – Gloves Lasting 1+ Year

TransOcean, Baker Hughes and others

- JSA or JHA (Hand-Outs)
- Identify Hazards
- PPE is Last Line of Defense



Hironclan

by Ken Rogus - CSHO

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