



The Inner Perimeter

The Products, People and Training Inside
Defense Technology/Federal Laboratories®

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INSIDE THIS ISSUE

- 1 Some simple facts to clear the air on pepper spray and pungency.
- 2 Training News
Training Calendar
- 3 New Products
First Defense X2™
Accessories
- 4 Behind the scenes at the tear gas plant.

Meet the people in
Customer Service

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Pepper Sprays are Too Simple To Be Technical

If there is a punch line to the OC story, it would be that pepper sprays are too technical to be simple, but too simple to be technical. End users are sometimes confused about things like Scoville Heat Units (SHUs), capsaicin and related capsaicinoids. Depending on the source and how it is presented, this information is at the least confusing, if not completely misleading. This brief article attempts to dispel myths and address some concerns in a language that is easy to understand and remember. To do that, we should establish a few simple rules:

OC is an oil. Corn oil is extracted from corn and OC is oil extracted from peppers. In OC, there is a group of compounds called "capsaicinoids." Capsaicinoids elicit the "heat" one experiences when exposed to OC.

The only "percentage" one needs to remember is "percentage of major capsaicinoids" also called "% MC". This is a laboratory certified standard. It's what is used in manufacturing and it's the only reasonable and repeatable way to quantify the level of heat-causing ingredients in an OC spray. Regardless of the SHU scale used or the certifying organization you subscribe to, SHU's are based on the capsaicinoid content of an OC spray, NEVER the other way around. Arriving at the pungency of a pepper spray from any other method, is turning the facts upside down and getting it all wrong.

Scoville Heat Units are based on the percentage of major capsaicinoids, never the other way around.

Scoville Heat Units are meaningless. SHUs worked for the spice industry, but we've had plenty of time to decide it's not appropriate for the OC spray industry. This industry needs to gravitate toward discussions about percentage of major capsaicinoids primarily because a laboratory can tell you exactly what the capsaicinoid content of an aerosol can is, but that same lab can only state "SHUs" as a conversion of the capsaicinoid content.

SHUs are based on % MC, never the other way around. SHUs cannot be used to determine capsaicin content. Period.

SHUs are an outdated method of measuring pungency. Instead, we should be using % MC. With these rules in mind, here's how the math works: Raw OC has a capsaicin content. For example, the OC in First Defense® is 2% MC. We mix that OC into a solution with other liquids (in First Defense® the ratio is 10% OC to 90% other liquids). If you take 2% MC and multiply it by 10%, you get 0.2%. First Defense® has 0.2% MC. Below is a table you can use as a reference:

First Defense® = 0.2% MC	10%of OC containing 2% MC
Pepper 10™ = 0.2% MC	10%of OC containing 2% MC
First Defense X2™ = 0.4% MC	20%of OC containing 2% MC
BodyGuard® = 0.67% MC	5%of OC containing 13.3% MC
BodyGuard® LE-10® = 1.3% MC	10%of OC containing 13.3% MC
BodyGuard® Hi-Power = 3% MC	15%of OC containing 20% MC

The Training Report

DT/FL Updated 5-Day Instructor Certification Program

Plans are currently underway to update the current Defense Technology / Federal Laboratories® Less-Lethal Instructor Certification Course (ICP). According to Michael Finley, Director of Training, "We are continuing our efforts to be the leader in less-lethal training by offering our students more. The updates will reflect the latest case law regarding the use of less-lethal as well as offer our students more tools to use when they return to their own agencies to teach." The updated course should be ready in Spring 2005.

Online Re-Certification for OC Continuing to Grow

In May 2003, the ARMOR Training Academy began offering an online OC Instructor Re-Certification and the response has been overwhelmingly positive. There have been almost 200 students that have re-certified online in 2004 alone, already exceeding last year's total. For further information, go to www.armortrainingacademy.com



New Tactical Shield Instructors Course

The ARMOR Training Academy also announces the new **Tactical Shield Instructor's Course**. This course was developed from the Tactical Shield User Course and has expanded to 4 days of high level instruction. Students learn the necessary information and are involved in "teach-backs" to equip them with the knowledge so they can successfully return to their own agencies and teach ballistic shield usage. For more information go to www.armortrainingacademy.com

DT/FL Presents at 2nd International Policing Conference in Australia

Michael Finley, Director of Training, traveled to Adelaide, Australia to present a paper on the Indoor Use of Chemical Agents. This presentation was part of a Forum of Less-Lethal experts from around the world who presented on a variety of less-lethal subjects. The week preceding the conference, Grycol International hosted a DT/FL 5-Day ICP.

Training Calendar

Instructor Certification Program



**DEFENSE TECHNOLOGY
FEDERAL LABORATORIES**

Plan Ahead!

Dec 6 - 10, 2004	Knoxville, TN	5 - Day ICP
Dec 13 - 17, 2004	Jacksonville, FL	5 - Day ICP
Jan 17 - 21, 2005	Tomball, TX	5 - Day ICP
Jan 24 - 28, 2005	Conneaut, OH	5 - Day ICP
Feb 7 - 11, 2005	Manchester Twp., NJ	5 - Day ICP
Feb 7 - 11, 2005	Round Rock, TX	5 - Day ICP
Mar 7 - 11, 2005	Bowling Green, KY	5 - Day ICP
Mar 7 - 11, 2005	Lexington, OK	5 - Day ICP
Mar 7 - 11, 2005	Williamsburg, VA	5 - Day ICP
Mar 14 - 18, 2005	Abington, PA	5 - Day ICP
Mar 14 - 18, 2005	Dublin, CA	5 - Day ICP
Mar 21 - 25, 2005	Brownstown, MI	5 - Day ICP
Mar 21 - 25, 2005	Neodesha, KS	5 - Day ICP
Mar 21 - 25, 2005	Hollywood, FL	5 - Day ICP

Support the NTOA Less-Lethal Database

The National Tactical Officers Association Less Lethal database is a simple to use electronic format for collecting information surrounding the deployment of less lethal projectiles. The information collected in the database will be shared with all less lethal stakeholders including NTOA member and non member agencies, the scientific and medical community and manufacturers of less lethal weapons and munitions. The NTOA is only collecting data, not making evaluations of incidents reported. Please note, agency and suspect specific information will only be released upon approval of the contributing agency. Your agency does not have to be an NTOA member to use this database.



<http://ntoa.org/database/>

NEW!



The Next Logical Step

First Defense® is the most widely used, safest, and most-trusted brand of pepper spray in the world. First Defense X2™ has all the attributes of First Defense®. The only difference is a higher level of capsaicinoids. First Defense X2™ is based on the foundation of First Defense® in that it is all food grade ingredients, water soluble, non-toxic, non-flammable and environmentally friendly.

The OC manufactured for First Defense X2™ also uses an environmentally safe propellant, nitrogen, to project a stream 12 feet. For those of you who think it's time for something a little extra spicy, there is now First Defense X2™ - The next logical step.

Call your Armor Holdings Sales Representative for more information today.



5239 5249



DT/FL Model # 1305

Less Lethal Accessories Available From DT/FL

NEW! Less-Lethal Weapons Care System

DT/FL is pleased to offer the Kleen-Bore® Less Lethal Weapons Care System to meet the unique cleaning requirements of 37MM and 40MM launchers. The kit contains a 3-piece aluminum cleaning rod; a 37/40MM heavy duty bore brush and cotton mop; a double ended nylon gun brush; solvents and oils; jag, patches, and gun cloths. And, it is all packed conveniently in a polypropylene storage box.

NEW! Sight Upgrade for the 1325 40MM Launcher

The Model 1347 sight is an optional upgrade for the Defense Technology/Federal Laboratories® Model 1325 40MM Launcher. It is a cost effective sight option that can be purchased as an upgrade or retrofitted on an existing 1325 Launcher. The longer "ghost-ring" type sight radius provides improved point of aim - point of impact capability at extended ranges. It is intended to be used as a cost effective option in lieu of holographic or dot sights.



Model 1347 Sight on 40MM



NEW! From Hatch® The A6 Munitions Bag

The Hatch® A6 is designed to carry a 37/40mm launcher and plenty of munitions. It features two clear vinyl map pockets (one inside, one exterior) and several large exterior zipper pouches for additional gear.

It is constructed of durable 1000 denier Cordura nylon and heavy-duty hardware with two molded rubber carrying handles. Two-inch wide padded nylon shoulder straps allow the A6 to be carried as a backpack and can be stowed away when not in use. Overall dimensions 17 1/4" x 11 3/4" x 4" (43.8 cm x 29.9 cm x 10.2 cm)

The Craft of Tear Gas

Tear gas has been around for some time and many of our customers have had the distinct opportunity of actually experiencing it first hand. Building quality grenades and projectiles can be very challenging, especially when it requires customization. The manufacturing staff pays close attention to detail, retrains on a regular basis, maintains adequate inventories of materials and components and stays disciplined on their procedures and keeping a work environment decontaminated. Otherwise you would end up with a big mess!

Each year DT/FL manufactures thousands of grenades and projectiles in over one hundred configurations of CS, CN and a variety of smokes. The unique line of products ends up in officers' hands all over the world. So, we thought you might like to know what goes into building something like a colored smoke grenade.

Step 1 - It all begins on the "gas side" where the raw materials, including a dye, are mixed and blended creating a dough like mixture. The doughy mixture is allowed to dry into solid chunks and then it is granulated. It's dubbed the "gas side" because of the odor of CS and CN can become quite pungent during the process. Everyone working in this area wears level C protective equipment.

Step 2 - The dry granulated formulation then goes to a press where it is pelletized to conform to the grenade or projectile where it is intended to reside. Several of the pellets are then stacked in a grenade canister with spacer rings.

Step 3 - An igniter formulation is made and poured into the grenade canister with the pellets. After the igniter formulation dries out and forms a solid, a lid is rolled onto the top. The grenade is then sent next door to the "assembly side."

Step 4 - The assembly side is an area that is cleaned meticulously at the end of every manufacturing day. Working here does not require level C protection. All the grenades will be cleaned, identified by lot number, inspected, and packaged. Afterwards, the grenades will leave the chemical manufacturing facility and be transferred to the the silk screen department where the part number, logo and warnings appear. Fuzes will be applied in the final production step.

At any given time during the year, there may be as many as fifteen employees working in the tear gas plant. A core group has been working together building tear gas for 5 years, managed by Ron Lesko, a 13 year veteran of tear gas manufacturing. "We enjoy the challenge, and manufacturing chemical agents is somewhat of a craft," says Lesko. He goes on to state, "mostly it's about the people who work here and their commitment to making a quality product that others can depend on."



Dried smoke formulation is pressed into pellets and put into grenade canisters.



The igniter formulation is added and a lid is securely rolled on top of the canister.



On the assembly side, grenades are cleaned, inspected and identified by lot number.

DT/FL People

A close up of the people behind the products

Customer Service

Darcy Wood - Central Region Customer Service Representative. Darcy was born and raised in Wheatland, Wyoming. After obtaining her



Associates degrees in Theatre and Office Administration, she relocated to Oregon and worked in Customer Service for Sanipac. She came back to Wyoming and began in Customer Service at Defense Technology in 2001. Darcy is a mother of two girls, ages 8 and 4, and instructs a water aerobics class in her free time.

Tena Romero - Western Region Customer Service Representative. Tena was born in Torrance, California. She came to Wyoming in 1993 and began at Defense



Technology in 1994. In her tenure at Def-Tech, Tena has held positions in accounts payable and receivable, aerosol manufacturing, purchasing, and as shipping manager. She came to Customer Service in 2003 and also coordinates all ATF transfers for Defense Technology. Tena enjoys hiking and swimming with her husband of 12 years when she is not working.

Sherry Lesko - Eastern Region Customer Service Representative. Sherry was born in Geneva, Ohio and raised in Jefferson, Ohio. She has worked for



Defense Technology for 8 years. After working in Research & Development and Product Liability for several years, Sherry came to Customer Service in 2001. She enjoys cooking, camping and fishing with her husband, and spending time with her pets.