

EMP MATERIALS

VHF/UHF RADIOS (2-4) BaoFeng BF-UV-5RE: (Purchased)

https://www.amazon.com/gp/product/B00C83AU9S/ref=oh_aui_detailpage_o00_s00?ie=UTF8&psc=1

DC 12V CAR CHARGER FOR UV5: (Purchased)

<http://www.ebay.com/itm/DC-12V-Car-Charger-Battery-Cable-For-Baofeng-Dual-Band-Radio-UV-5R-5RA-5RE-New-/152542154088?epid=218762361&hash=item2384388d68:g:km0AAOSwgcNZEToW>

SMA MALE to PL-259 SO-239 Female Jack jumper pigtail Cable: (Purchased)

<http://www.ebay.com/itm/SMA-MALE-to-PL-259-SO-239-Female-Jack-jumper-pigtail-Cable-RG58-8-MADE-IN-USA-/322089585937?hash=item4afc090d11:g:Zj4AAOSwVFIUAkxl>

AM/FM/SWL RADIO: (Purchased)

<http://www.ebay.com/itm/World-Full-Band-Radio-Receiver-Portable-Digital-FM-SW-MW-LW-Radio-Alarm-Clock/122548074514?trksid=p2047675.c100005.m1851&trkparms=aid%3D555018%26algo%3DPL.SIM%26ao%3D2%26asc%3D45701%26meid%3D81966f0aef214e6fad718d84bf999011%26pid%3D100005%26rk%3D2%26rkt%3D6%26mehot%3Dpp%26sd%3D152602964484>

KENWOOD TS-130S HF RADIO: (Purchased)

<http://www.ebay.com/itm/Kenwood-SSB-Transceiver-TS-130s-/162608988231?hash=item25dc404047:g:GGYAAOSwdutZe~tE>

FIELD STRENGTH METER: (Purchased)

www.eBay.com

MILITARY GRADE FLASHLIGHTS (2): (Purchased)

<http://www.ebay.com/itm/Fulton-Angle-Head-Flashlight-2-each-USGI-MX-991-U-/132253815024?hash=item1ecaf110f0:g:MOMAAOSwsXVZYBJw>

https://www.amazon.com/Genuine-Issue-Lumen-Moonbeam-Flashlight/dp/B01M9CPYJY/ref=sr_1_fkmr0_1?s=hi&ie=UTF8&qid=1501853589&sr=1-1-fkmr0&keywords=Fulton+Angle+Head+Flashlight+2+USGI+MX-991%2FU

D CELL BATTERY: (Purchased)

https://www.amazon.com/AmazonBasics-Everyday-Alkaline-Batteries-12-Pack/dp/B00MH4QKP6/ref=sr_1_3_a_it?ie=UTF8&qid=1501853857&sr=8-3&keywords=d+cell+battery

AAA BATTERIES : (Purchased)

https://www.amazon.com/RAYOVAC-824-60PPF-Alkaline-Batteries-Reclosable/dp/B01C5OY6OE/ref=sr_1_25?s=wireless&ie=UTF8&qid=1501855289&sr=1-25&keywords=AAA+BATTERY

9V BATTERIES : (Purchased)

https://www.amazon.com/Energizer-Max-Alkaline-Volt-4-Count/dp/B001HA7BOA/ref=sr_1_38_a_it?ie=UTF8&qid=1503263046&sr=8-38&keywords=9+volt+battery

D High Capacity NiMH Rechargeable Batteries 2 Pk (Purchased)

<https://www.harborfreight.com/pack-of-2-high-capacity-nimh-rechargeable-d-batteries-97872.html>

9V 200 mAh High Capacity NiMH Rechargeable Battery 1 Pk

<https://www.harborfreight.com/high-capacity-nimh-rechargeable-9-volt-battery-97865.html>

AA NiMH Rechargeable Batteries 4 Pk (Purchased)

<https://www.harborfreight.com/pack-of-4-nimh-rechargeable-aa-batteries-90148.html>

DVM (Digital Voltmeter) : (Purchased)

<https://www.harborfreight.com/7-function-digital-multimeter-90899.html>

Valspar 1-Gallon Paint Bucket : (Purchased)

<https://www.lowes.com/pd/Valspar-1-Gallon-Residential-Paint-Bucket/3172549>

Behrens 6 Gal. Galvanized Steel Round Trash Can with Locking Lid: (Purchased)

<http://www.homedepot.com/p/Behrens-6-Gal-Galvanized-Steel-Round-Trash-Can-with-Locking-Lid-00108/202264761>

Behrens 10 Gal. Galvanized Steel Round Trash Can with Locking Lid: (Purchased)

<http://www.homedepot.com/p/Behrens-10-Gal-15-in-H-x-16-in-Dia-Garbage-Pail-with-Lid-6110KX/301442489?keyword=behrens+10+GALLON+CAN>

Behrens 31 Gal. Galvanized Steel Round Trash Can with Lid

<http://www.homedepot.com/p/Behrens-31-Gal-Galvanized-Steel-Round-Trash-Can-with-Lid-1270/100202118>

12 Volt Waterproof Solar Panel Sealed Lead Acid Battery Charger

https://www.apexbattery.com/12-volt-solar-panel-charger-1260mw-battery-ch.html?gclid=EAIaIQobChMI9pDow9y91QIVTVcNCh0sYgKnEAQYBSABEgJTmfD_BwE

Solar Charger, Dizaul 5000mAh Portable Solar Power Bank

Waterproof/Shockproof/Dustproof Dual USB Battery Bank for cell phone, iPhone, Samsung, Android phones, Windows phones, GoPro Camera, GPS and More

https://www.amazon.com/Charger-Portable-Waterproof-Shockproof-Dustproof/dp/B00YOP7LV8/ref=sr_1_13?ie=UTF8&qid=1501854975&sr=8-13&keywords=solar+panel

NiMh Battery Charger:

<https://www.harborfreight.com/nimh-battery-quick-charger-62538.html>

13 Watt Briefcase Solar Charger, 12 & 24vdc:

<https://www.harborfreight.com/13-Watt-Briefcase-Solar-Charger-68750.html>

900 WATT GENERATOR (Probably won't fit in a 31 gallon trash can, will have to build a dedicated faraday shield):

<https://www.harborfreight.com/900-max-starting700-running-watts-2-hp-63cc-2-cycle-gas-generator-epacarb-63025.html>

24pk of Synthetic Blend 50:1 2-Cycle Engine Oil Mix 2.6 oz. Bottle

<https://www.walmart.com/ip/24pk-of-Synthetic-Blend-50-1-2-Cycle-Engine-Oil-Mix-2-6-oz-Bottle/796800064>

300W Car Power Inverters DC 12V to AC 110V Inverter 2 Ports USB& Outlets

http://www.ebay.com/itm/300W-Car-Power-Inverters-DC-12V-to-AC-110V-Inverter-2-Ports-USB-Outlets/263026495352?_trksid=p2047675.c100005.m1851&_trkparms=aid%3D555018%26algo%3DPL.SIM%26ao%3D2%26asc%3D45701%26meid%3D23a8d1e8927d433e9961875f27751f3c%26pid%3D100005%26rk%3D3%26rkt%3D6%26sd%3D201546517193

https://www.amazon.com/BESTEK-300W-Power-Inverter-Adapter/dp/B004MDXS0U/ref=sr_1_3?s=electronics&ie=UTF8&qid=1516128928&sr=1-3&keywords=300+watt+inverter

iOSAT Potassium Iodide Tablets, 130 mg (14 Tablets)

How And When To Take Potassium Iodide

Potassium iodide should be taken as soon as possible after public health officials tell you. You should take one dose every 24 hours. More will not help you because the thyroid can "hold" only limited amounts of iodine. Larger doses will increase the risk of side effects. You will probably be told not to take the drug for more than 10 days.

https://www.amazon.com/iOSAT-Potassium-Iodide-Tablets-130/dp/B00006NT3A/ref=sr_1_fkmr0_1_a_it?ie=UTF8&qid=1515796635&sr=8-1-fkmr0&keywords=Potassium+Iodate+%28KIO3%29

OR:

<https://www.campingsurvival.com/potiodpilkio.html>

WATER PURIFICATION TABLETS:

<https://www.campingsurvival.com/emgerdrinwat.html>

M. Gilger

1/1/18

Rev. 2

Suggested Items for Populating a “Faraday Cage” & Notes Concerning an EMP/CME

The following is a 'suggested' list only, with comments, of inventory items perhaps useful in the immediate aftermath of a CME and/or an EMP. These items are to be placed in a Faraday Cage for protection against destructive radio and magnetic pulse energy generated from Coronal Mass Ejections and nuclear sourced Electromagnet Pulses. Such measures are not considered to be long term, as any electrically dependent device, or system, will be useless in the event of a full on EMP/CME.

The Faraday Cage:

Our experiments have involved some of the following, with suggestions for preparing and populating a 'Cage' for acknowledged, short term protection of items, perhaps useful in dealing with the immediate aftermath of an EMP/CME event:

1. New galvanized garbage can with tight fitting lid . . . tight, meaning with respect to electrical connection of the lid to the body of the can. Some cans, usually smaller, might be found with a locking type cover. The main issue is no insulation between lid and can, with NO gaps. Some are suggesting sealing with conductive Aluminum builders tape. Elevate the “Cage” off the floor for moisture protection and conductivity . . .
2. 'Cages' being experimented with by several associates include, Galvanized Garbage Cans . . . various sizes; gallon and quart empty new paint cans, with lids prepared for three hundred and sixty degree electrical contact.
3. Items to be placed in a 'Faraday Cage' container must be insulated from touching the inside surface of the container; supported from the bottom of the container and not touching the top lid.
4. Current thinking is all items should be wrapped in heavy gage Aluminum foil to provide additional Faraday effect protection . . . some are advising double wrapping with attention to NO holes or slits that, at microwave frequencies, act like portholes for damaging high frequency pulse energy . . . some experimental work has been done, suggesting the effectiveness of Aluminum wrapping in the 220 MHz frequency range, although at low power levels, is effective in these specific experiments.
5. Note, some ask if the 'Cage' should be grounded to the earth with wire, or strap. The answer is, NO . . . any such connection, or external lead to an otherwise effective cage, will act as an antenna at radio frequencies generated in an EMP event leading destructive energy directly to the cage . . . estimated voltages on a lead, such as a one meter in length ground line, will be on the order of hundreds to thousands of volts developed for devices within the range of an EMP nuclear-burst.

Suggested Items:

1. Calculators, with batteries . .
2. Slide Rules . . yes, mechanical slide rules . . just in case (don't have one? Get one. Don't know

how to use one? Learn to.) Pack with electronic calculators, so available without panic when SHTF event occurs, and batteries no longer function.

3. Electrical Inverter . . . used to produce 120VAC from 12 VDC automotive/garden tractor/marine storage batteries. Pay attention to power ratings in continuous use, and peak load watts.
4. Circuit testing device for AC and DC voltages . . . with extra batteries. . . store with batteries removed from any electronic device. Consider analog voltage and current mechanical meters, all wrapped for protection.
5. Computer external hard drives and thumb drives containing personal irreplaceable data. . . Remember . . . paper back up of critical documents is the common sense alternative for those who are serious about long term survivability.
6. Watches/clocks, if not mechanical . . . consider spare batteries of proper format/voltage . . .
7. Laptop computer . . . to read stored external hard drives, thumb drives and CD/DVDs, when others are destroyed. . . (store with power cord and AC to PC power block.). Of course, critical data, personal information, financial records, and so on, should be stored on '**hard copy**' and protected from fire and water . . . yes, it's hard to believe, for some . . . but paper media does not recognize magnetic pulses, voltage/current surge damage.
8. Paper and wooden pencils . . . durable/convenient in case of total emergency need to communicate (messenger concept) . . . not subject to EMP damage, but immediately available in a crisis where panic and despair may be in play and all electronic communications are gone.
9. Batteries . . . **consider redundancy** . . . dated . . . labeled . . . an assortment as needed to cover all electronic devices in your 'Cage' . . . Remember, do not store electrical instruments with batteries in the devices; remove, package, label and date batteries for the specific instrument use. . . Note also . . . most modern batteries, such a C, D, AA, AAA are now claiming up to 10 year storage life, making them an excellent choice for longer term storage . . . wrap and date . . .
10. Charging devices for stored electronic devices; usable if power 'might' be available for a short time from storage batteries/Inverters/automotive sources . . .
11. Electronic cameras with batteries, charging devices, auto-focus lenses, (these are trivial items, but demonstrates the cascade thinking process of how to evaluate ones' electronics) . . . in the longer term, there will be no useful electronics . . .
12. Camera/video memory chips . . . wrap, label and date . . .
13. Shortwave radio receiver . . . redundant battery powered . . . capable of overseas shortwave broadcast reception. Foreign radio broadcasts may not be involved in a localized EMP/CME event, and may be the only information sources for what may have happened out in the world. . .
14. Hand held radios e.g., FRS type, for possible local/personal communications . . . Include their batteries and charging equipment and pre-programed frequencies . . .
15. Small ear-bud type head phones for SW radios/handhelds (HTs) . . . (these devices use far less power than main speaker for extended battery life) . . .

16. Calendar, extended type for as many years ahead as available . . in the Cage . . dedicated to tracking battery refresh dates and other periodic maintenance items. Remember, no electrical time keeping instruments after an event. Calendar to be stored with batteries for immediate access when SHTF . . .
17. Light bulbs: small, for flashlights . . . old fashion ones might survive; modern 'curly bulbs,' LED and florescent and such, contain vulnerable circuitry with high probability of being internally destroyed. May not be of use, because there will be no electrical power on the grid.
18. Pocket 'multi-tool' . . not because it will be damaged, but when the SHTF, searching for even simple tools may not be productive, especially for those with minimal personal basic tool resources.
19. Lanterns . . both battery powered, and chargeable, store with charge devices and Inverter, if available. Short term use . . . ultimately, without batteries and/or charging power source all such devices will be useless in the long term.
20. Head Lamps, camper style. These use LEDs and are by nature vulnerable to high current/voltage pulses. Store lamps with batteries removed. Wrap each separately in Aluminum foil. Remember to label/date everything . . . hugely useful when the lights go out, perhaps not to return in any near term scenario. . .
21. For those with electronic skills, inclusion of some basic generic electronic parts . . . e.g., Silicon diodes, LEDS, and other parts that might be damaged and replaceable if you have critical items to repair. This might be a separate list, if anyone has specific ideas . . .
22. Soldering tools, wattage's consistent with Inverters . . . usually, small twenty-five to forty watt pencil type equipment is adequate for smaller electrical devices where emergency soldering is required. Also include small tools for ease of immediate access, even though not EMP susceptible.
23. Candles and matches . . not damaged by EMP, but: **no shelf life concerns.** When SHTF, searching for even the simplest items will be critical, when fear and panic over take. Store in rugged container e.g. your galvanized "Cage" for dry and rugged protection.
24. Medical devices are vulnerable . . these items, from external monitoring electronics to implanted devices are vulnerable and can not be protected in a Cage . . I have no material as yet, discussing the ramifications of and EM Pulse on the range of critical medical devices. If anyone finds material and discussion of this aspect of an EMP, it would be useful material to add to this discussion/list.
25. Note . . there are many items that are not specifically subject to EMP damage, but in the event of an event, might be critical in the immediate circumstance of pure convenience and pre-placement when panic and raw fear take over. Such critical items such as iodine tablets, miscellaneous medical and first aide items are possibilities that might be useful if placed in one location e.g. your Cage. Such items take thought and pre-planning by those taking the consequences of an EMP seriously.

26.

This is an open list intended as a starting point for ideas and experiment. . . additions are welcome, if deemed feasible/practical in a worst case scenario . . .

Remember: any device depending on batteries, charging batteries, and electrical power in general, will be of 'short term' value, even if it survives in a Cage. The reality, of weeks and many months/years of no electrical power is a stark exercise in 'what if,' reality, few will take the time to imagineer, and grasp the absolute desolation of such a circumstance. Few today are mentally prepared for a total non-electrical survival scenario.

Most are not prepared to accept our absolute total dependence on electrical power to themselves, family, including pets and community in general, particularly in urban and near urban environments. The 'what if' scenario, where there is no power for possibly a very long time is an ever increasing possibility. Few think seriously about how they might have any chance of survival under such circumstances.

Note also, the stark reality of such a scenario is not science fiction. Some, perhaps out of fear, refuse to consider facts. Early awareness of the potential damage from an EMP was derived from nuclear testing by Russia and the U.S.. Data was collected years ago during our Pacific nuclear tests (Starfish Prime) and by the Russians ('61-'62) in Kazakhstan. Such testing is said to be on-going on a laboratory basis.

With the probable development of ever larger and more focused technology, no one seems to know just what an effective Faraday Cage might look like at increased power levels of nuclear devices designed specifically for enhanced gamma ray production, especially with respect to amateur efforts to produce an effective Cage . . .

Finally, use of an effective Faraday Cage is at very best, a totally temporary defense against an effective EMP/CME event. All items dependent on batteries, chargers and inversion are doomed to eventual uselessness in the long term, in the event of a full scale EMP event, even if they survive. One might be well advised to consider other measures, in addition to 'short term' protection, for any survival critical electrical appliance/tool.

For further reading and research . . .

For an excellent current summary of EMP status and its potential use as a weapon, see “Empty Threat Or Serious Danger: Assessing North Korea's Risk To The Homeland” . . . from house committee on Homeland Security 12/Oct/17 . . .

For a recognized and sobering commentary on what an EMP event looks like in the streets, look at William R. Forstchen's “One Second After,” published in paper back by Tom Doherty Associates, LLC, 2011.

Also see, “Super-EMP Weapons” . . by Jerry Emanuelson . . excellent discussion, some science in layman's terms, of the basic physics of the mechanisms that makes an EMP so lethal . .

For an overview of the reality of current technology and a basic description of the mechanism how a pulse is generated by a massive gamma ray burst in layman's terms, see “It's Not a Matter of *if*, It's a Matter Of

when.” . . . General Eugene Habiger, USAF (ret), Former Commander In Chief, U.S. Strategic Command, May 2002

Finally, this monogram started as an attempt to think about what might be useful and practical for populating a 'Faraday Cage' in the event of an CME, or an EMP. From time to time, I've added bits and piece of information as I learn more about the physics and ramifications of such a catastrophic event. I've learned there is an enormous amount of information available, some of which is total nonsense, and some which is valid and supported by sound physics and experimentation, as well as real data collected from Russian and U.S. Atomic testing, that started and continued after Hiroshima and Nagasaki.

This is not a pleasant subject. It is one of stark mind bending reality, ever more significant in the modern era. Perhaps the best hope is that one might, with study and common sense, take some action to improve one's chances for short term survival in a devastated world totally unknown to most of the American population.

No one can say how long any return to some level of normalcy might take, if even possible in the event of an effective EMP/CME. It is with this in mind, and in the spirit of working on a 'not so hypothetical scenario' of gut survival, I've started to record rough notes on the business of dealing with an EMP/CME.

G. Beckwith
12/Jan/18
Rev 07.2