Periodic Table of Pad Printing Elements

1																	
Oi																	
Open Inkwell - the way it was done before ink cups were invented.																	

2	3	4
Sc	**Ma**	**T**
Single Component: Ink that does not require catalyst.	*Matte Agent: Additive used to lower gloss level.*	*Temperature: Ideally between 20 and 23 Celsius.*

5	6
Ic	**Mn**
Ink Cup - minimizes solvent evaporation	*Human powered pad printing. You do all of the work.*

The real Periodic Table of Elements was created by a Russian chemist in the late 1860s and 70s. While charting elements by their respective atomic weights a pattern emerged in that elements with similar characteristics were grouped in columns. The Periodic Table of Pad Printing Elements groups "elements" together by subject, but the numbers don't really mean anything.

Use this table for reference and to impress your non-pad-printing friends and coworkers with your knowledge of the wacky science of pad printing.

John Kaverman

Element Groups

- Theories of Operation
- Machines
- Accessories
- Cliché
- Pads
- Inks
- Plant Conditions

7	8	9	10
Sb	**Tc**	**Mc**	**H**
Silicone base: The material used in molding pads.	*Two Component: Ink the does require a catalyst.*	*Metallic Colors: Inks with metallic pigment added.*	*Humidity (relative): Ideally between 40 and 60%.*

11	12
Fl	**Em**
Flooding: Step 1 in the printing cycle.	*Electro-mechanical: Cam driven pad printer.*

13	14	15	16
So	**Mr**	**Cc**	**Cl**
Silicone oil: Added to the base, amount determines the shore of the pad.	*Mixing Ratio: The ratio of ink to catalyst.*	*Custom Colors: Several shades blended to make one.*	*Cleanliness: Not just a virtue; a necessity.*

17	18	19	20	21	22	23	24	25	26	27	28	29	30
Dr	**Sm**	**Vr**	**Rd**	**Ps**	**Pc**	**Aw**	**Ad**	**Pp**	**Co**	**Ct**	**H**	**Su**	**V**
Doctoring: Step 2 in the printing cycle.	*Stepper Motor: The newest type of drive system available.*	*Vertical: The most common configuration for pad printers.*	*Rotary Dial: popular method to convey parts.*	*Pad Shuttle: Print 1-3 colors, or "roll-on" print.*	*Pad Cleaner: Automatic or manual. Uses tape to clean.*	*Artwork: If this isn't good to start with, nothing can fix it later.*	*Alcohol developer: Don't use stuff from the hardware store.*	*Photopolymer: You can make them in-house easily.*	*Cone shape: The most popular of pad shapes.*	*Catalyst: The third component used in making pads.*	*Hardener: Also known as the catalyst.*	*Substrate: The specific material that you need to print.*	*Ventilation: Make sure it is sufficient.*

31	32	33	34	35	36	37	38	39	40	41	42	43	44
Pu	**Pn**	**Hz**	**Li**	**Pt**	**Ae**	**Fi**	**Wd**	**Ts**	**Rt**	**Sh**	**Ti**	**Pl**	**L**
Pick-up: Step 3 in the printing cycle.	*Pneumatic: uses compressed air to drive the machine.*	*Horizontal: picks up vertically, prints horizontally.*	*Linear indexer : the most basic method of part conveying.*	*Pre- and Post-Treat: What you do before and after printing.*	*Automatic Eject: Look 'ma, no hands.*	*Film: Orient emulsion down for cliché making.*	*Water developer: Use distilled water, not tap water.*	*Thin steel: Steel and photopolymer "go between" cliché.*	*Rooftop: Pad with continuous ridge in the long axis.*	*Shore: The scale used to quantify the "hardness" of a pad.*	*Thinner: Used to adjust viscosity for printing.*	*Pot Life: The amount of time that a two-component ink lasts.*	*Lighting: Best if uniform and non-directional.*

46	47	48	49	50	51	52	53	54	55	56	57	58	59
Pr	**Ep**	**Cs**	**Lc**	**D**	**Ne**	**Ls**	**Se**	**St**	**Sq**	**Bi**	**Re**	**Cf**	**S**
Print Stoke: Steps 4 and 5 in the printing cycle.	*Electro-Pneumatic: Compressed air with electronic controls.*	*Carousel: print a lot of colors without moving your part.*	*Linear Conveyor: also known as an "under-over" conveyor.*	*Drying: Not be confused with curing.*	*Nesting fixtures: Let your equipment supplier make them.*	*Line Screen: Use 120 line / cm for most applications.*	*Single exposure: Photopolymer for fine detail only.*	*Steel: The most durable cliché option.*	*Square: contoured like a cone at the tip, but with square sides.*	*Break-in: A period required for pads to work properly.*	*Retarder: A thinner with a slow rate of evaporation.*	*Certification: Proof that ink meets specific requirements.*	*Safety: Should be your first consideration.*

60	61	62	63	64	65	66	67	68	69	70	71	72	73
R	**Mf**	**Ro**	**Oc**	**C**	**A**	**Ee**	**De**	**Le**	**Ca**	**Wl**	**Ap**	**M**	**E**
Return: Step 6, the end of the printing cycle.	*Multi-Format: Computer Numeric Controlled (CNC) pad printer.*	*Rotary: round pads and cliches.*	*Oval conveyor: Unique to pad printing.*	*Curing: When printed parts are really "done".*	*Automate: Integrate everthing to maximize efficiency.*	*Exposure Equipment: Not just a box with some lights in it.*	*Dual exposure: Film first, line screen second.*	*Laser etch: We'll probably all be doing this eventually.*	*Compound angle: A pad with different draft in X and Y axis.*	*Wear Life: For pads there is no magic number.*	*Adhesion Promoter: Additive for making ink stick better.*	*Metric System: Pad printing's system of measurement.*	*Ergonomics: Comfortable people are more efficient.*