	Material List	Discussion Points
1	plasma etching of $LiNbO_3$ films Not Allowed	Etch Sytem will get contaminated with Alkali metal Lithium , which is a highly mobile ion in Si, SiO_2. If we use fluorine chemistry the by-products are not truly volatile and tend to deposit on everything which will effect the subsequent processes.This will lead to micro masking and plasma loading to the point of significant degradation of etch rates and uniformity. Because of this ,hard open chamber clean is recommended each time this process is done followed by etch and clean cycles to get back to normal operation. Even physical sputtering (Ar) will lead to redeposition . This remains always an issue while etching $LiNbO_3$.
2	PZT in PECVD Allowed with TGA results	The concern is degassing. TGA analysis is required on the PZT sample. If there is no mass loss till 400C, It will be allowed.
3	Spin coating Not Allowed	Request For :To coat Methyl acrylic acid and Vinyl pyridine and induce polymerization using N,N′-Bisacryloyl-1,2- dihydroxy-1,2-ethylenediamine Carcinogenic, extremely dangerous
4	Teflon Deposition Not Allowed	Use of C_4F_8 will deposit in the chamber and become tough to remove,specially on the downside of the chuck and on the walls. Longer depositions will cause etch rate variation . O_2 plasma will clean only the topside of the chuck and clamp ring but not adequately clean the sides .
5	a-Si etching/ landing on $Bacl_2$/$TiCl_3$	Will release non volatile byproducts .Cl chemistry will not etch the $BaCl_2$

	Can do atleast partial etch and try	substrate but partial etch is safe.
6	Metal Mask in DRIE Not Allowed	Metals cannot be used as etch masks it can be covered in photoresist or oxide. Metals are not allowed because of mobile conductive ions and micro-masking problems. Also non-volatile reactants. Aluminum, for example, the melting point of AlF3 is 1291C. If Al goes to the chamber with fluoride-basedchemicals, the tiny particles of AlF3 will deposit on the surface of wafer, causing micro-masking problem . Many literature can be found for use of metal mask like Ni and Cr as they give high selectivity but most of them are used in dedicated machines. Single machine has always got the problem of micro masking, nonvolatile byproducts etc.
7	SiC etch & PECVD Not Allowed Landing on SiC substrates can be allowed in RIE tools	Dry etching of deposited/thin film SiC according to Literature is a " dirty process" and releases C. This can only be allowed in systems which has heated chamber walls . This will also minimize the by-product build -up. Dedicated chamber shielding should be maintained. Regarding PECVD deposition - NNFC has experience in deposition SiC layers which led to heavy contamination and chamber cleaning was
8	Gold and Platinum etch Not Allowed	Stopped as it was observed that the samples run after such etch had black deposition. Also huge DC bias and reflected power variation were observed.
9	Metal etch in RIE individual case	Sputter etch(Ar) is not allowed. Chemical etch - case by case will be considered
10	Cr etch in RIE Allowed	The CrOCl byproduct should be volatile enough to be efficiently pumped away. For cleaning use SF6-O2.

11	PZT etch in RIE Not Allowed	It is mostly sputter that etches the lead and Pt parts of the films. Sputtering deposits material on the walls and top electrode which may cause RF shorts. This is a longer term problem.
12	soda lime glass dry etching Not Allowed	To be tried in PV lab: Anelva RIE
13	GaAs Not Allowed	GaAs etching requires preconditioning nad extensive post chamber clean based on the duration of the etch. The system needs to have a scrubber with standard Extraction and ventilation . Exisiting system does not have a scrubber !
14	MgO Not Allowed	There are no volatile compounds we can form with Mg, so the only possible etch is an Ar sputter. Sputter etch will redeposit around the chamber, and a mechanical clean will eventually be required. You may get redeposition also on the photoresist mask, which can make it hard to remove and leave ugly residues after stripping. if any, trace amounts of Mg is present in the chamber can effect other devices . Even if the etch process is unaffected, metal residues will still be present in the chamber even after quite serious cleaning
15	adhesive for sticking small samples in RIE/DRIE common Issues	
	Crystal bond	CrystalBond should not be exposed to the plasma during etching. It will change the etch conditions. If you are attaching pieces to a carrier wafer remove all the CrystalBond from the wafer surface.
		For systems using mechanical clamps absolutely no CrystalBond should be in contact with the clamp. Your sample will stick to the clamp and will need to be retrieved from the chamber
	Keptone tape	Cannot be used above 150C. After processing it will be difficult to remove

	leaving a sticky residue
Carbon dots or tape	It is often too sticky for easy removal. C-dots are convenient but will not be as good for thermal conduction.The C-dots are known to be good to 70 or 80C but not for higher temperatures.
Prohibitted things	**Silver Paste** Although it is used in some of the metallization systems it can't be used to attach samples to carrier wafers in the etchers. Exposure to plasma woulds be a bad thing, esp in ICP systems.
	Oil It gets everywhere quickly.
	Photoresist Can be time consuming to separate wafers Poor thermal transfer Cannot be used above 120C