Material List	Discussion Points
plasma etching of LiNbO3 films Not Allowed	Etch System will get contaminated with Alkali metal Lithium , which is a highly mobile ion in Si, SiO2. If we use fluorine chemistry the by-products are not truly volatile and tend to deposit on everything which will affect 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 LiNbO3.
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.
Spin coating request Not Allowed	Request For :To coat Methyl acrylic acid and Vinyl pyridine and induce polymerization using N,N′-Bisacryloyl-1,2- dihydroxy-1,2ethylenediamine Carcinogenic, extremely dangerous
Teflon Deposition Not Allowed	Use of C4F8 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 . O2 plasma will clean only the topside of the chuck and clamp ring but not adequately clean the sides
a-Si etching/ landing on Bacl2/TiCl3 Can do at least partial etch and try	Will release non volatile by-products .Cl chemistry will not etch the BaCl2 substrate but partial etch is safe.

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. Aluminium, for example, the melting point of AlF3 is 1291C. If Al goes to the chamber with fluoride-based chemicals, 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, non-volatile by-products etc.
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
Gold and Platinum etch Not Allowed	Stopped at NNFC as it was observed that the samples run after such etch had black deposition. Also huge DC bias and reflected power variation were observed.
Metal etch in RIE Will be taken case by case	Sputter etch(Ar) is not allowed. Chemical etch - case by case will be considered
Cr etch in RIE Allowed	The CrOCl byproduct should be volatile enough to be efficiently pumped away. For cleaning use SF6-O2.

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.
soda lime glass dry etching Not Allowed	To be tried in PV lab: Anelva RIE
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 !
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 affect other devices . Even if the etch process is unaffected, metal residues will still be present in the chamber even after quite serious cleaning

Plasma etch chamber Adhesives Issues	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 it should not come 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. Some prohibited adhesives - 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. Photo resist Can be time consuming to separate wafers Poor thermal transfer Cannot be used above 120C

Soda lime glass etching Not allowed in NNFC etch tools	Can be tried in PV lab Anelva RIE chamber
Boron nitride etch using CHF3 + O2 plasma Allowed	Both BF3 and NF3 are volatile. BN is also non-contaminating. So can be processed
Polystrene beads Allowed in etch chamber	O2 plasma should work
NiO dry etch Not allowed	With Cl/Ar chemistry, for a decent etch rate it has to move towards a sputtering process. Since we don't allow sputter etching in RIE-Cl, we may not be able to allow NiO etch. However, it is possible to move towards a chemical process, but the etch rates will be terribly low, and the selectivity with PR will be very poor.

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Inputs taken from NNFC contamination committee, literature references and practises from other clean room facilities.