THE DISPENSATION MONITOR

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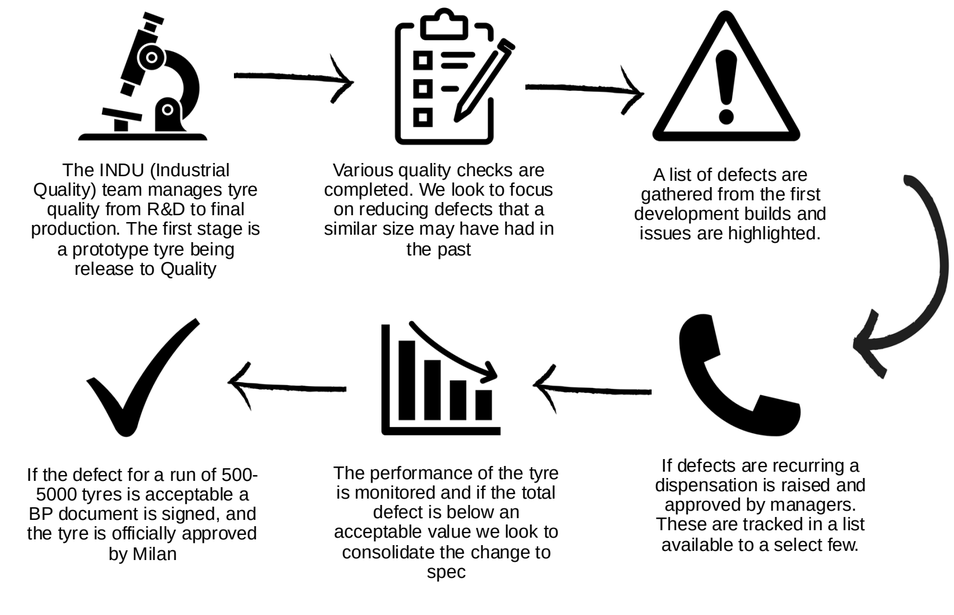
Pirelli Mission Statement:

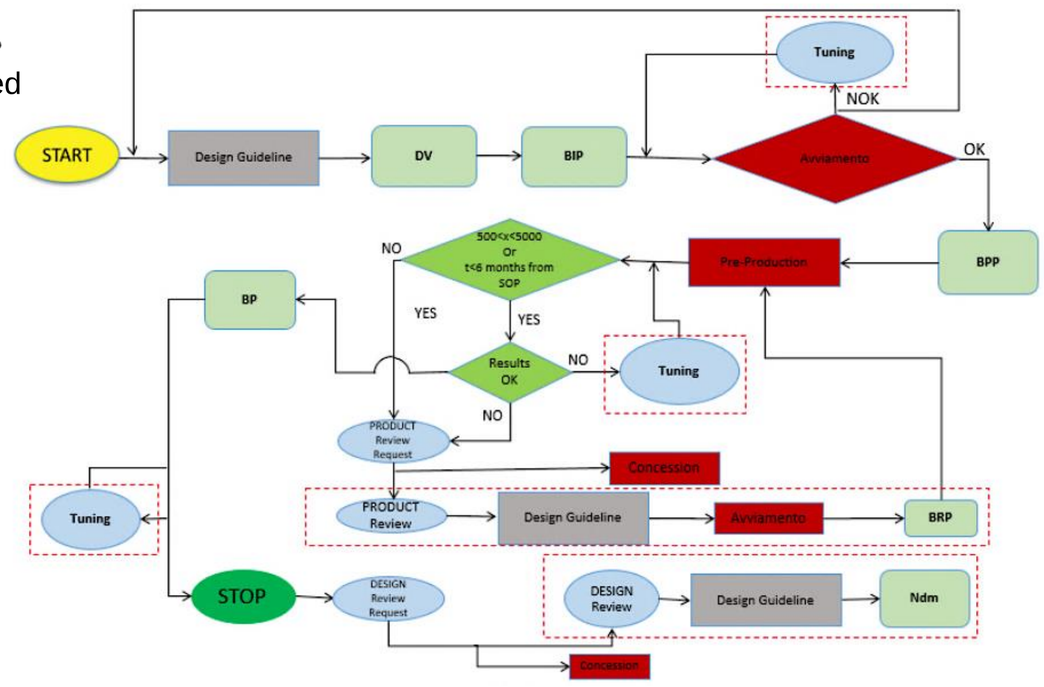
Constantly pushing innovation in a cultured sustainable and considerate manner. We deliver high value tyres and mobility services so you can safely further your limits

”POWER IS NOTHING WITHOUT CONTROL”

What is Indu



Simplified



Scan for more info on the Pirelli model

The Project

Note: A lot of the data in the main page screenshot is blacked out for confidentiality.

DISPENSATION MONITOR

EPS	No.	Start	End	Tyres produced	Details	Action (INDU ONLY!)	Def Coc	Def %	Def Coc	Def %	Def Coc	Def %	Total Defect % (During)	Hyperlink
045	69730	04/03/2024	30/08/2024	[redacted]	EPS 045 & 046 TREAD COMPOUND FROM DML TO [redacted]. THE QPLEX DIE STAYS THE SAME, AS DOES THE RUN CODE. DUE TO DFER RW SHORTAGE ACROSS BOTH SITES. PENDING A NEW DML FORMULATION.	To leave on disp	PF6.02	[redacted]	TS.01	[redacted]	CE6.01	[redacted]	[redacted]	
369	67455	07/11/2023	30/09/2024	[redacted]	EPS 369 1AE369 LAYUP, 1ST STAGE DRUM, SW SETTING 8, 2ND STAGE ALIGNED WITH DRM, PROCESS TRANSFER SIZE EPS 639; BEADSTRIP CVEDGE [redacted], BEADSTRIP WIDTH 35MM (TULP), LINER WIDTH [redacted], CUSHION WIDTH [redacted] 1ST STAGE DRUM 420MM, ANVIL [redacted] & SW-ALL SETTING 110 TO [redacted] 3L8C. LOAD COVER 405 & PRESHAPE 421	s20326 @ spec TS.01.3% x1645 to disp TS.010.06% EPS 639 for comparison x1370 TS.010.36% CR acceptable or tyres and RDR?	PF6.02	[redacted]	T14.00	[redacted]	F1.02	[redacted]	[redacted]	..\..\Laura Blacklock\Size Info Eco\Dispensation Analysis\EPS 369 Alignment to EPS 639 TS Defect.xlsx
572	68170	05/12/2023	14/08/2024	[redacted]	EPS 572 TREAD COMPOUND FROM DACE TO DML. THE QPLEX DIE REMAINS THE SAME (2181), AS DOES THE RUN CODE	To leave on disp	C6.03	[redacted]	PF6.02	[redacted]	C7.01	[redacted]	[redacted]	
681	70761	13/04/2024	10/07/2024	[redacted]	EPS 681 TREAD COMPOUND FROM DFER TO RCBS. THE QPLEX DIE STAYS THE SAME, AS DOES THE RUN CODE. IF EXTRUDED ON THE TREADLINE THE RUN CODE CHANGES FROM 41787 TO 31787.	To leave on disp	TS.01	[redacted]	PF6.02	[redacted]	F1.02	[redacted]	[redacted]	
E16	71138	13/05/2024	27/12/2024	[redacted]	EPS E16 / C84 TO USE CURING CYCLE VCA1430BTD6(14.30MIN) IPO VCA1300BTD6[redacted]NORMAL PROD	Larger run to monitor	B1.03	[redacted]	PF6.02	[redacted]	CE5.01	[redacted]	[redacted]	
231	70023	15/03/2024	10/10/2024	[redacted]	EPS D42 AND EPS 231 SIDEWALL DIE TO 1012 IPO 1104, OVERALL WIDTH [redacted] FOR HISTORICAL FS DEFECT (ALSO ON R&D BUILDS). EXTENDED RUN APPROVED BY R&D, PENDING RESULTS. TYRES SUBMITTED FOR BEAD FATIGUE SPEC NO. 23E1233A01 - passed RDR to do	TYRES SUBMITTED FOR BEAD FATIGUE SPEC NO. 23E1233A01 - passed RDR to do	F5.00	[redacted]	CE4.12	[redacted]	T8.00	[redacted]	[redacted]	
413	65596	16/08/2023	28/08/2024	[redacted]	EPS 413 SW DIE FROM 1093 TO 977, WIDTH FROM 62MM TO [redacted] RUNCODE 58977, SW SETTING @ SPEC 14MM. AN EXTENSION OF D61371. TO ELIMINATE TS, T6 & F3 DEFECTS. REDUCED DEFECT BUT NOT RESOLVED.	To leave on disp for defect level	TS.03	[redacted]	T10.01	[redacted]	C1.07	[redacted]	[redacted]	
051	70760	13/04/2024	10/07/2024	[redacted]	EPS 051 TREAD COMPOUND FROM DML TO RCBS. THE QPLEX DIE STAYS THE SAME, AS DOES THE RUN CODE. IF EXTRUDED ON THE TREADLINE THE RUN CODE CHANGES FROM 31502 TO 21502.	To leave on disp	TS.01	[redacted]	PF6.02	[redacted]	CE6.01	[redacted]	[redacted]	
688	70762	13/04/2024	10/07/2024	[redacted]	EPS 688 TREAD COMPOUND FROM DFER TO RCBS. THE QPLEX DIE STAYS THE SAME, AS DOES THE RUN CODE. IF EXTRUDED ON THE TREADLINE THE RUN CODE CHANGES FROM TL 41739 TO 31739.	To leave on disp	PF6.02	[redacted]	F5.00	[redacted]	C6.03	[redacted]	[redacted]	
C67	71179	15/05/2024	27/12/2024	[redacted]	1AEC67 COMPLEX LAYUP CHANGE TO ALIGN TO EPS 339 (PROCESS TRANSFER SIZE). OUTSIDE EDGE FROM 446MM TO [redacted] LINER WIDTH 386MM TO [redacted] CUSHION WIDTH 396MM TO [redacted] TUC OUTSIDE EDGE TO PLY OUTSIDE EDGE 45MM. ""EXTENSION OF D70471"" ""7.5.24: CR4613 SUBMITTED BUT DECLINED - REQUIRES TYRES SUBMITTED AND R&D CHECKS NEXT RUN""	***7.5.24: CR4613 SUBMITTED BUT DECLINED - REQUIRES TYRES SUBMITTED AND R&D CHECKS NEXT RUN***	TS.03	[redacted]	TS.01	[redacted]	F5.00	[redacted]	[redacted]	
006	71551	06/06/2024	10/12/2024	[redacted]	1BS006 EPS 006 CUSHION AND LINER THICKNESS FROM 0.7MM / 0.9MM TO [redacted] AGREED WITH THE PRINCIPLE R&D ENGINEER FOR A ONE-OFF 3L8C BUILD	Before and after data to gather	T14.00	[redacted]	CE6.01	[redacted]	PF6.02	[redacted]	[redacted]	
B08	69154	02/02/2024	20/11/2024	[redacted]	EPS B08 SIDEWALL DIE FROM 1518 TO 948, WIDTHS [redacted] FOR FS DEFECT. CONTROLLED PREVIOUS TEST: x1859 CURED, x73 FSs @ [redacted] V5 SPEC DIE (1518): x1011 CURED, x77 FSS @ [redacted]	Size is in design review	F5.00	[redacted]	F1.02	[redacted]	F5.01	[redacted]	[redacted]	
351	69737	04/03/2024	30/08/2024	[redacted]	EPS 552 & 3516, 352 TREAD COMPOUND FROM DML TO DACE. THE QPLEX DIE STAYS THE SAME, AS DOES THE RUN CODE. DUE TO DFER RW SHORTAGE ACROSS BOTH SITES. PENDING A NEW DML FORMULATION.	To leave on disp	GM.01	[redacted]	CE6.01	[redacted]	PF6.02	[redacted]	[redacted]	
104	67492	09/11/2023	15/08/2024	[redacted]	EPS 104 SWALL DIE FROM 1058 TO 1008, SETTING IS 16MM (SPEC), OVERALL WIDTH FROM 123MM TO [redacted] 1AE104 LINER THICKNESS FROM 0.8MM TO 1MM AND CUSHION FROM 0.9MM TO 1MM, AN EXTENSION OF D60488.	R+D working on size	PF6.02	[redacted]	B1.01	[redacted]	TS.03	[redacted]	[redacted]	
094	69488	22/03/2024	30/08/2024	[redacted]	EPS 094 SWALL DIE FROM 1036 TO 1043, SETTING FROM [redacted] AND OVERALL WIDTH FROM [redacted] AN EXTENSION OF D60336. APPROVED BY R&D MANAGER WHILST FURTHER TESTS ARE CARRIED OUT (DIMENSION). FOR TS03 DEFECT.	OK for HS testing (passed). Ask DR if tyres are required then submit spec change.	B1.03	[redacted]	F1.02	[redacted]	TS.03	[redacted]	[redacted]	
D04	66949	12/10/2023	20/08/2024	[redacted]	EPS D50 & D04 TREAD DIE TO 22519 PO 211104, OVERALL WIDTH IS 328MM. FOR B3 DEFECT. AN EXTENSION OF D65680 WITH EPS D04 ADDED. IN AUG '23 EPS D50 HAD X1101 CHECKED WITH ONLY x2 B3s REPORTED.	L.B has talked to T.Alley - he is looking into what he needs e.g. test tyres before requesting spec change	TS.03	[redacted]	PF6.02	[redacted]	TS.01	[redacted]	[redacted]	

The Dispensation Monitor is an Excel-based tool that consolidates data from various departments into a single dashboard. It provides weekly and monthly overviews of active dispensations, using dB Visualizer to pull key metrics like tyre production numbers, top scrap defects, and defect percentages for each size.

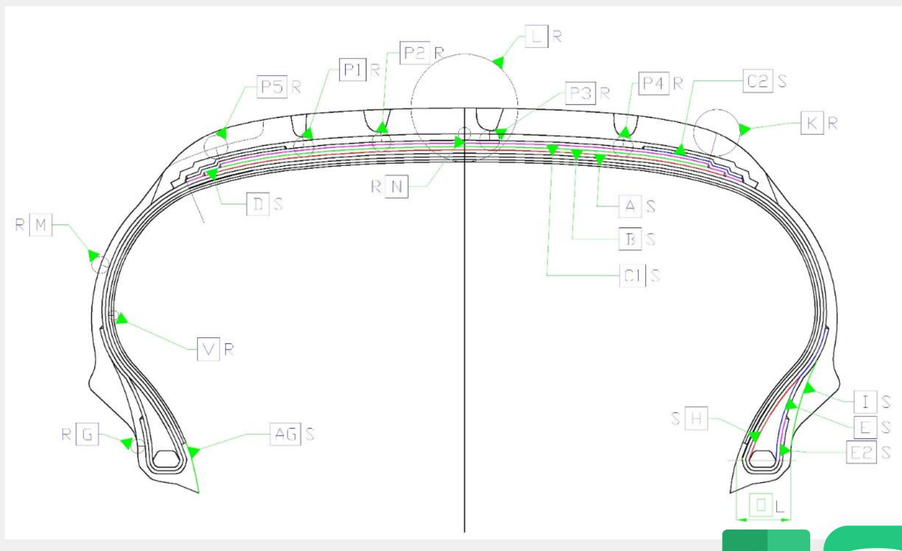
This tool simplifies comparisons of before-and-after data for all dispensation sizes and uses Excel macros to link data from multiple sheets, including:

- **Dispensation Tracker** for manager updates,
- **Tyre Weights Sheet** for weight impact tracking,
- **Industrialisation Plan** for the weekly production schedule.
- **Etc**

The sheet is updated weekly and used by the INDU team to monitor progress and resolve defects.

The complete steps for checking a tyre that may have had defect.

1. **Managers update the Dispensation Tracker** for recurring issues.
2. **Dispensation Monitor** (updated by myself) pulls defective sizes using **Macro** and **dB Visualizer** from various data sources using one button. This process takes 5-10 minutes.
3. The INDU team investigates **before-and-after defect data** on the sheet and takes further action if enough tyres have been produced. If improvements are significant, we consolidate to spec with R&D.
4. **Digital Section Measurement (DSM)** is used to compare tyre parameters before and during the dispensation. If within tolerance, the dispensation is removed, and changes are made permanent.
5. If defects persist, we collaborate with **Planning** to delay the next production run until resolved. Multiple dispensations may be needed to fix all issues.



The Digital Section Measurement Tool enables us to measure with an accuracy of 0.01mm.

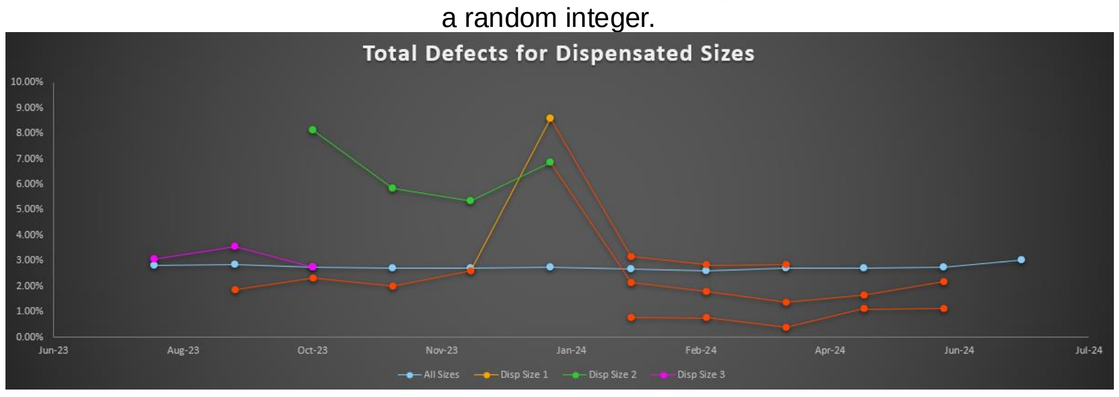
Definitions

A list of frequently used INDU Status managements and their definitions can be found below.

Abbrv	Full Form	Description
BIP	Benestare Industrializzazione Prodotto (Production Industrialisation Approved)	Document filled by R&D before a BPP is signed again by R&D
BPP	Benestare Pre-Produzione (Pre-Production Approval)	Document filled by R&D before a tyre is signed off by INDU TEAM
BP	Benestare Produzione (Production Approval)	Document filled by INDU TEAM when signing of tyres as successful
NDM	Notifica Di Modifica (Change Notification)	Document filled by R&D when a tyre is pending a dispensation
PP	Pre-Production	The status given to sizes after a BPP is complete
PR	Production Release	The status given to sizes after a BP is complete
SD	Special Dispensation	Status given to a size on dispensation that also need to be signed off

The Projects Benefits

The benefits of dispensations are plotted over time in the graph below, with a dispensation being run indicated by the red lines. For company privacy, the waste percentage values in the Y-Axis are multiplied by a random integer.



Future Developments

The below questions are some examples of what can be improved on in the future.

- How can tyre weight changes be integrated with dispensations?
- How can this project be expanded to be used across multiple plants?
- How can a historical table be included for all sizes to ensure dispensations are added faster?