



ORION USER MANUAL

July 2025

Contents

1. Introduction
2. Software Purpose
3. Authorization
4. Main Screen
 - 4.1. Main Screen Content
 - 4.2. Main Screen Functional Features
 - 4.3. Left Block of the Screen
5. Products
 - 5.1. Creating a Product
 - 5.2. Editing a Product
 - 5.3. Deleting a Product
6. Recipes
 - 6.1. Creating a Recipe
 - 6.2. Editing a Recipe
 - 6.3. Deleting a Recipe
7. Reports
8. INP
 - 8.1. Adding a New INP
9. Users
 - 9.1. Creating a User
 - 9.2. Editing a User
 - 9.3. Deleting a User
 - 9.4. User Roles and Permissions
10. Settings
 - 10.3. General Settings
 - 10.4. Sheet Settings
 - 10.5. Manual Calibration
 - 10.6. Equipment
 - 10.7. INP Settings

1. Introduction

This document is a user manual for a software system designed to operate the robotic veneer sheet processing line. It describes the software's features, interface, and usage procedures.

2. Software Purpose

The software is designed to perform the following functions:

- 2.1. Interface with the production line to eliminate veneer sheet defects
- 2.2. Integrate with a machine vision system
- 2.3. Communicate with a programmable logic controller (PLC)
- 2.4. Detect defects in veneer sheets using neural network models based on machine learning
- 2.5. Display defect recognition results:
 - 2.5.1. Types and quantities of defects
 - 2.5.2. Veneer grades before and after repair
 - 2.5.3. Build repair paths based on the patching machine ejector's position
- 2.6. Configure controller parameters through service settings
- 2.7. Display reference materials for the current software version
- 2.8. Create and edit products
- 2.9. Create and edit recipes
- 2.10. Display the user interface based on role: Administrator, Technologist, Operator

3. Authorization

To log in to the software suite:

3.1. Enter your personal six-digit code using the numeric keypad.

3.2. If a mistake is made, delete the last character by pressing the "<" (delete) key.

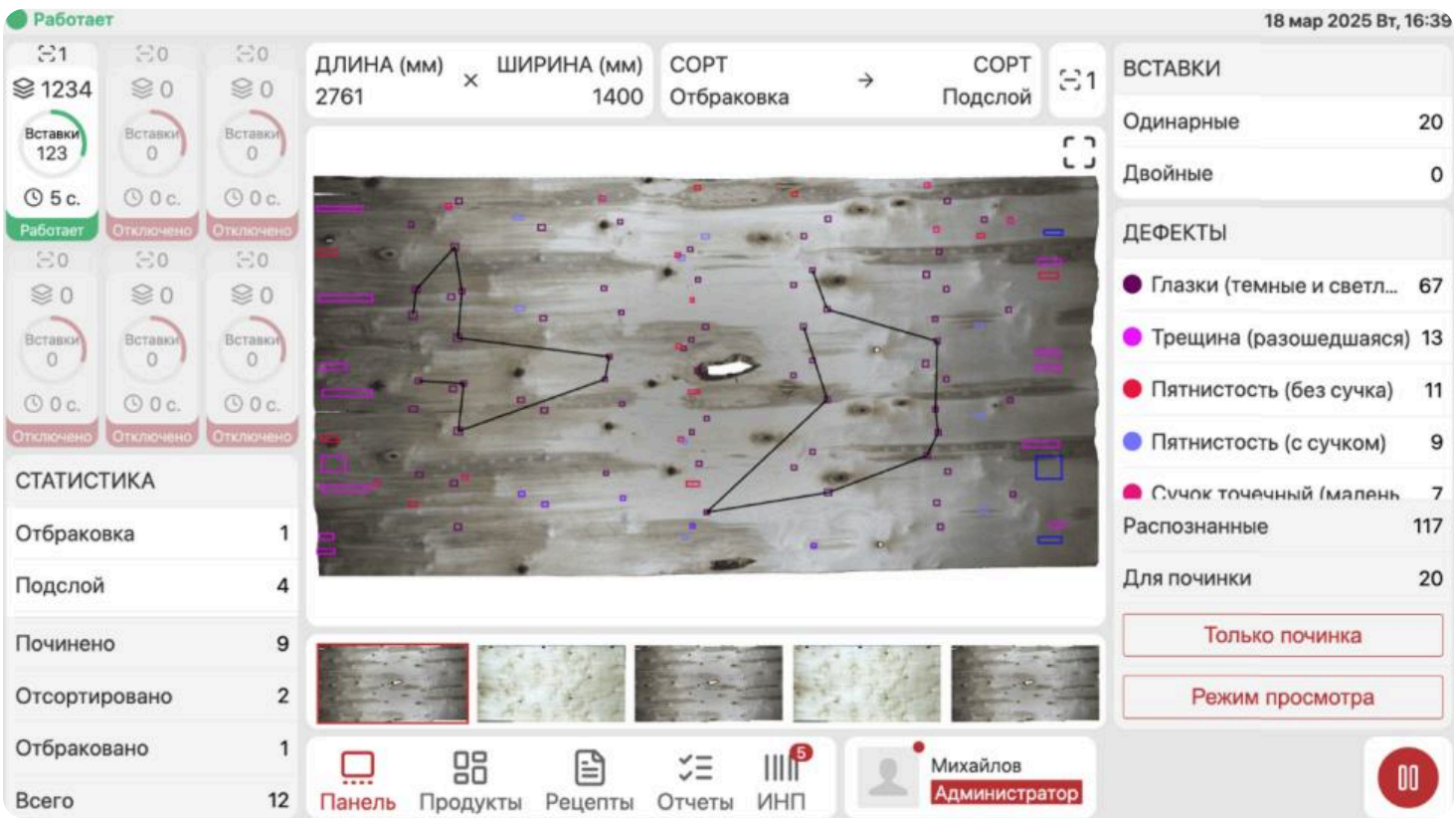
The image shows a login interface for a software suite named "orion". At the top, the word "orion" is displayed in a blue, lowercase, sans-serif font. Below the logo, there are six empty white square boxes arranged horizontally, intended for entering a six-digit code. Underneath these boxes, the Russian text "Введите ваш код" (Enter your code) is written in a small, gray font. Below the text, there is a numeric keypad consisting of circular buttons. The buttons are arranged in four rows: the first row contains 1, 2, and 3; the second row contains 4, 5, and 6; the third row contains 7, 8, and 9; and the fourth row contains 0 and a left-pointing chevron (<), which serves as a delete key. The entire interface is set against a light gray background.

4. Main Screen

4.1. Main Screen Content

The main screen displays the following information:

- 4.1.1. Processed veneer sheet
- 4.1.2. Length and width of the sheet (in mm)
- 4.1.3. Current and target veneer grades
- 4.1.4. Number of single and double inserts performed by the RTC system
- 4.1.5. Number and types of recognized defects
- 4.1.6. Total number of detected defects and those sent to RTC for repair



4.2. Main Screen Functional Features

4.2.1. Veneer Image Manipulation:

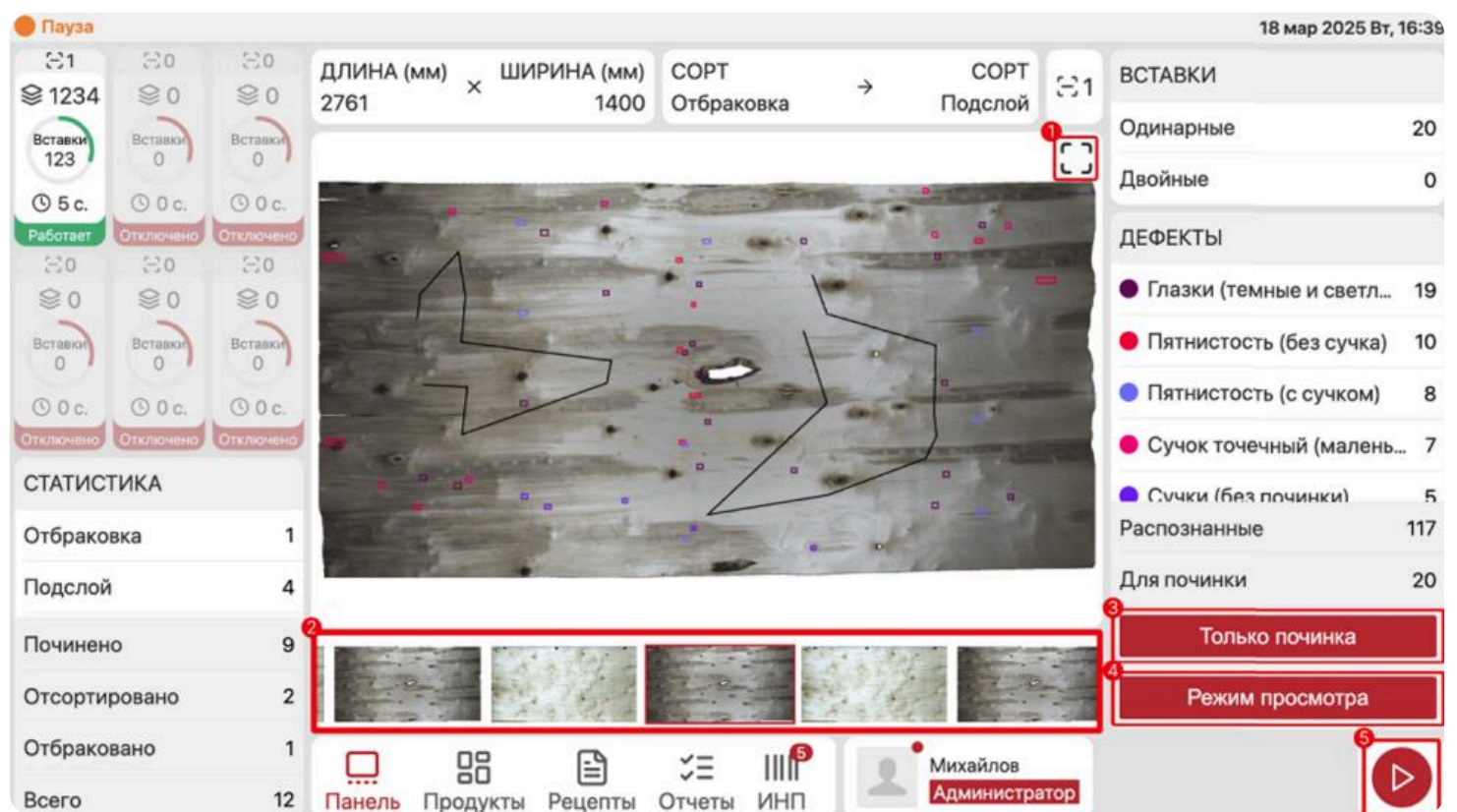
4.2.1.1. Zoom in for detailed viewing or switch to full-screen mode (label “1”). To exit full screen, press the button in the top-right corner.

4.2.1.2. View previously scanned sheets (label “2”). Selecting a sheet activates View Mode.

4.2.2. View Mode: Image display remains static, not updated in real-time (label “4”).

4.2.3. Repair Only Mode: Displays only repairable defects on the list and on the image (label “3”).

4.2.4. Pause / Resume: Controls the processing workflow (label “5”).



4.3. Left Block of the Screen

4.3.1. RTC Cell Information:

4.3.1.1. Cell ID number (label “1”)

4.3.1.2. Current status (Active / Off / Error / Manual) (label “2”)

4.3.1.3. Number of sheets repaired by the cell (label “3”)

4.3.1.4. Average repair time per sheet (label “4”)

4.3.1.5. Number of remaining inserts required to complete the current sheet (label “5”)

4.3.2. General statistics for the current production run:

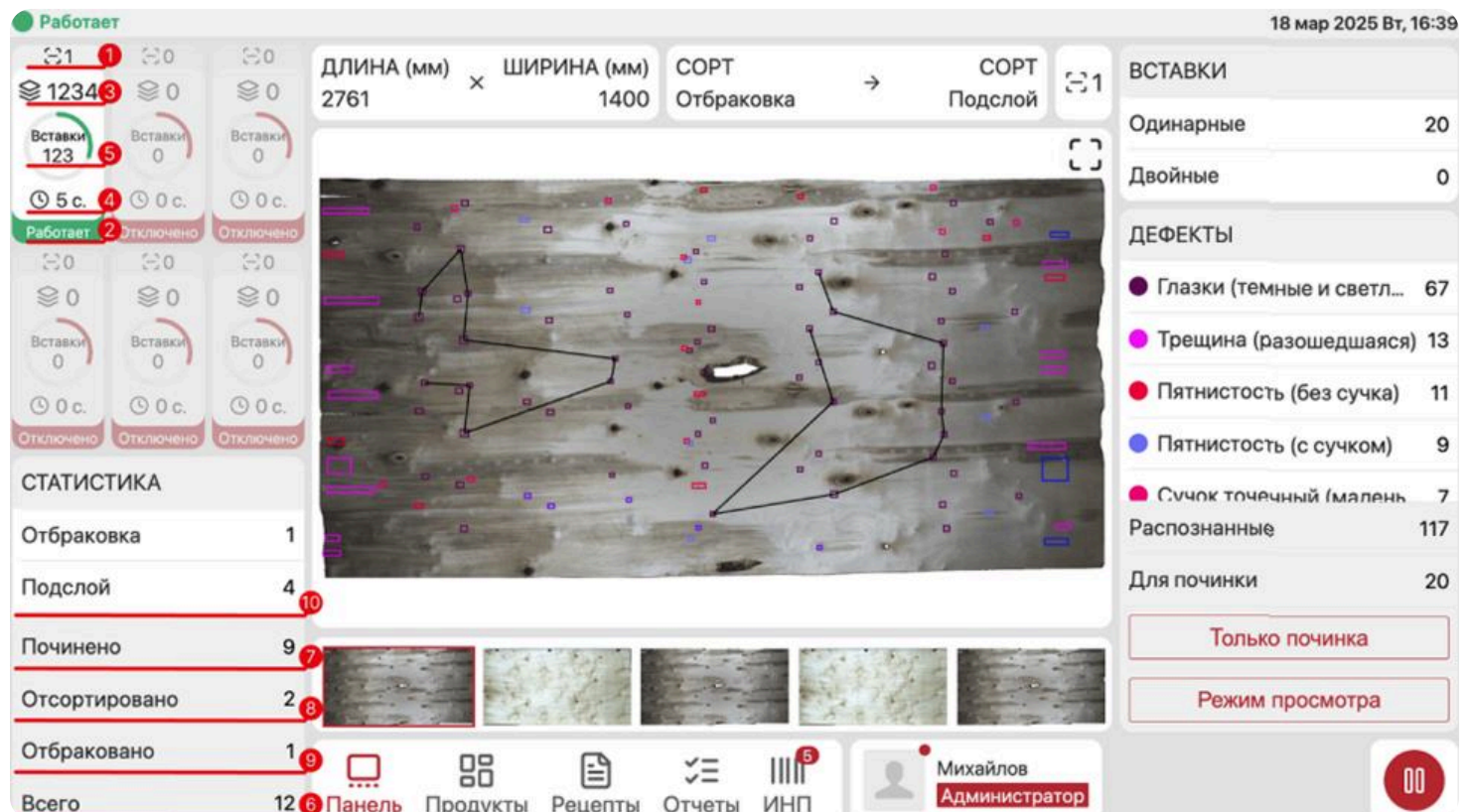
4.3.2.1. Number of processed sheets (label “6”)

4.3.2.2. Number of repaired sheets (label “7”)

4.3.2.3. Number of sorted sheets not requiring repair (label “8”)

4.3.2.4. Number of rejected sheets per recipe criteria (label “9”)

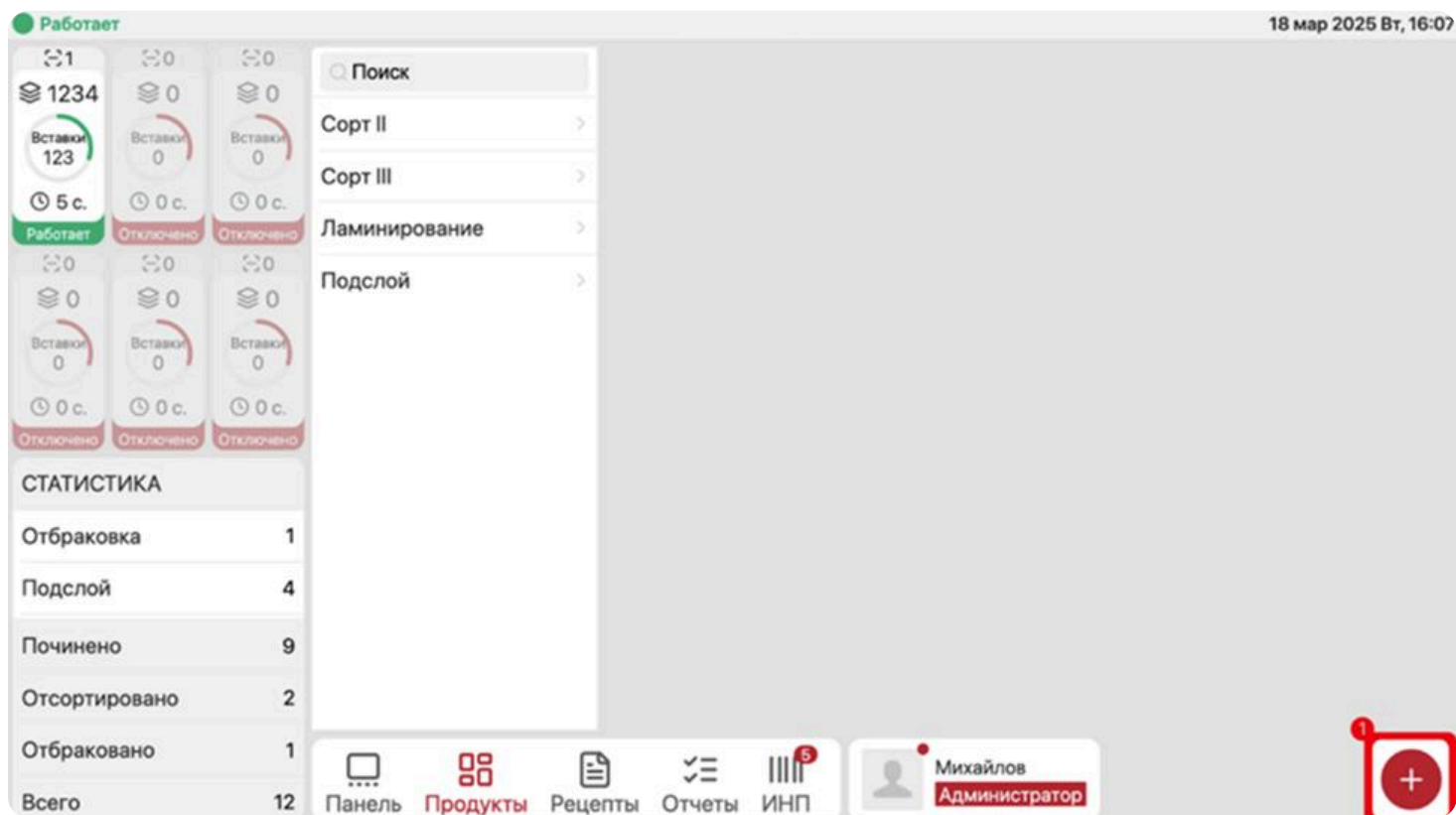
4.3.2.5. Veneer yield statistics by grade (label “10”)



5. Products

5.1. Creating a Product

5.1.1. Press the red “+” button in the bottom right corner of the screen (label “1”).



5.1.2. Fill in the product details:

5.1.2.1. Enter the product name (letters, numbers, and special characters allowed) (label “1”)

5.1.2.2. Specify length in millimeters (label “2”)

5.1.2.3. Specify width in millimeters (label “3”)

5.1.2.4. Proceed to the next step (red arrow button pointing right) (label “4”)

5.1.2.5. To cancel, press the cross icon (label “5”)

Работает 18 мар 2025 Вт, 16:05

Описание Дефекты Параметры Приоритеты Допуски Результат

* Название продукта Введите название 1

* Длина (мм) 0 2

* Ширина (мм) 0 3

СТАТИСТИКА

Отбраковка	1
Подслой	4
Починено	9
Отсортировано	2
Отбраковано	1
Всего	12

5

4

5.1.3. Select defects:

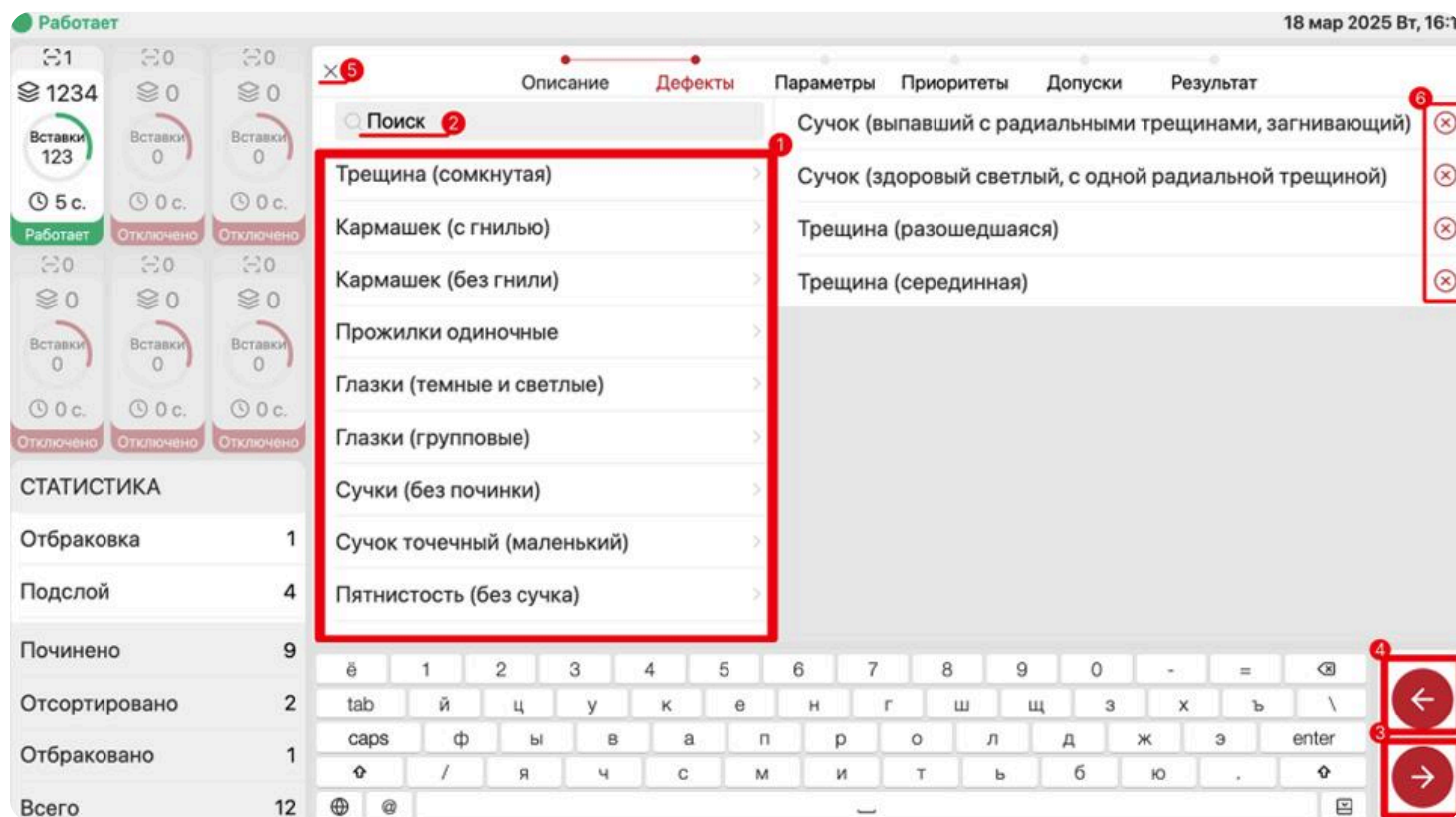
5.1.3.1. Choose defects from the list that should be considered during production and processing (label “1”) (Use the search field if necessary — label “2”)

5.1.3.2. You can remove mistakenly selected defects using delete button (label “7”)

5.1.3.3. Proceed to the next step (red arrow button pointing right — label “3”)

5.1.3.4. Go back to the previous step (red arrow button pointing left — label “4”)

5.1.3.5. To cancel, press the cross icon (label “5”)



5.1.4. Specify defect parameters (for each selected defect in order, the defect name is shown in field “1”):

5.1.4.1. Set allowable quantity for this defect type (label “2”)

5.1.4.2. Specify whether the defect is repairable (toggle switch — label “3”)

5.1.4.3. Define defect size limits (min/max length/width — labels “4–7”)

5.1.4.4. Enable rejection if size limits are exceeded (toggle switches — labels “8–11”)

5.1.4.5. Proceed to the next step (red arrow button pointing right — label “12”)

5.1.4.6. Go back to the previous step (red arrow button pointing left — label “13”)

5.1.4.7. To cancel, press the cross icon (label “14”)

Работает 19 мар 2025 Ср, 11:06

Описание Дефекты **Параметры** Приоритеты Допуски Результат 1 / 2

Сучок (выпавший с радиальными трещинами, загнивающий) 1

Починка Дефекта 3

* Количество дефектов 0 2

Ширина Длина

Минимум Минимум

0 мм. 4 0 мм. 6

Отбраковка Отбраковка

Если меньше мин. знач. 8 Если меньше мин. знач. 10

Максимум Максимум

0 мм. 5 0 мм. 7

Отбраковка Отбраковка

Если больше макс. знач. 9 Если больше макс. знач. 11

СТАТИСТИКА

Отбраковка	1
Подслой	4
Починено	9
Отсортировано	2
Отбраковано	1
Всего	12

Панель Продукты Рецепты Отчеты ИНП 5

Михайлов Администратор

13 12

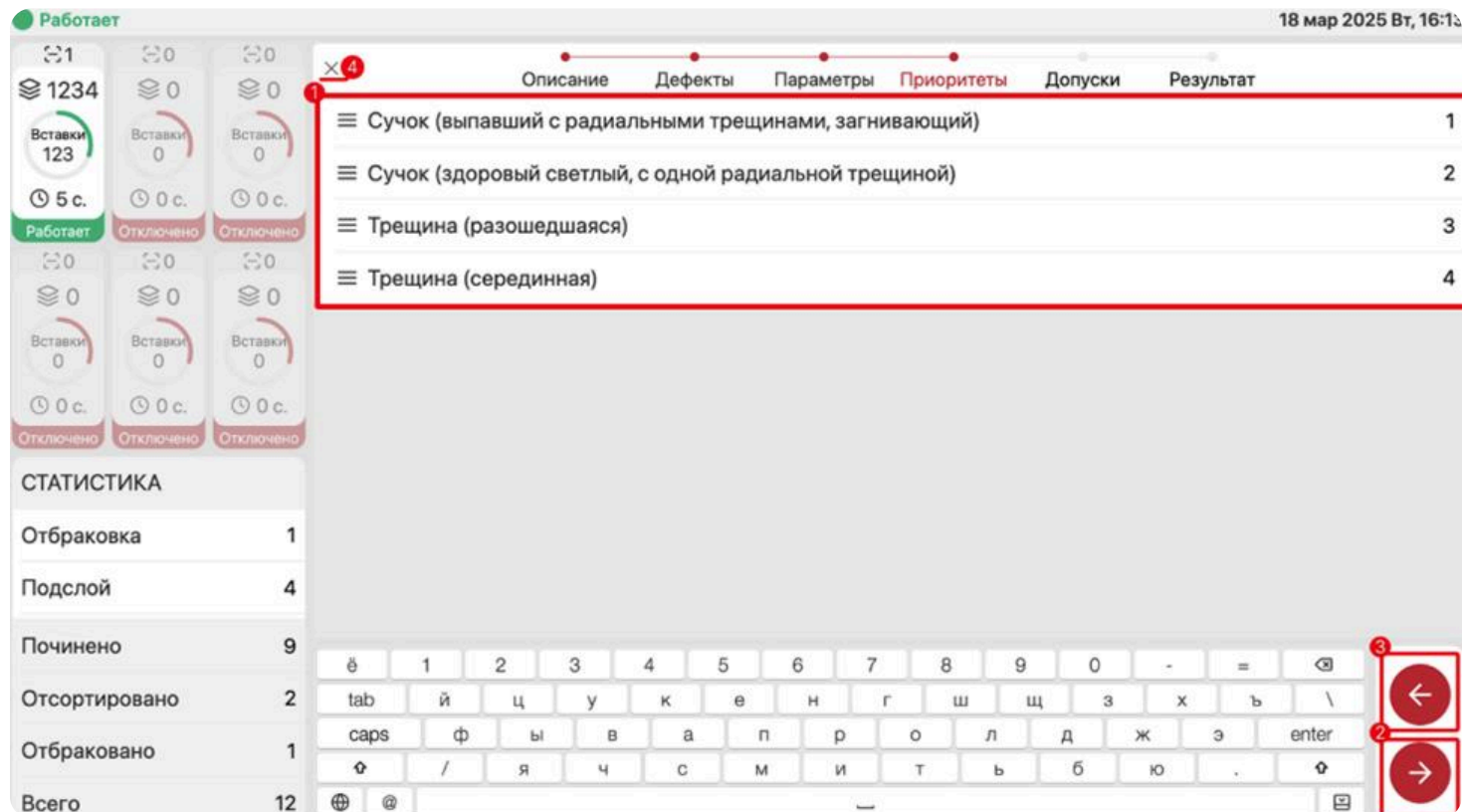
5.1.5. Set repair priorities:

5.1.5.1. Set defect repair priorities by dragging rows (label “1”)

5.1.5.2. Proceed to the next step (red arrow button pointing right — label “2”)

5.1.5.3. Return to the previous step (red arrow button pointing left — label “3”)

5.1.5.4. To cancel, press the cross icon (label “4”)



5.1.6. Set tolerances:

5.1.6.1. Max allowable number of unrepairable defects (label “1”)

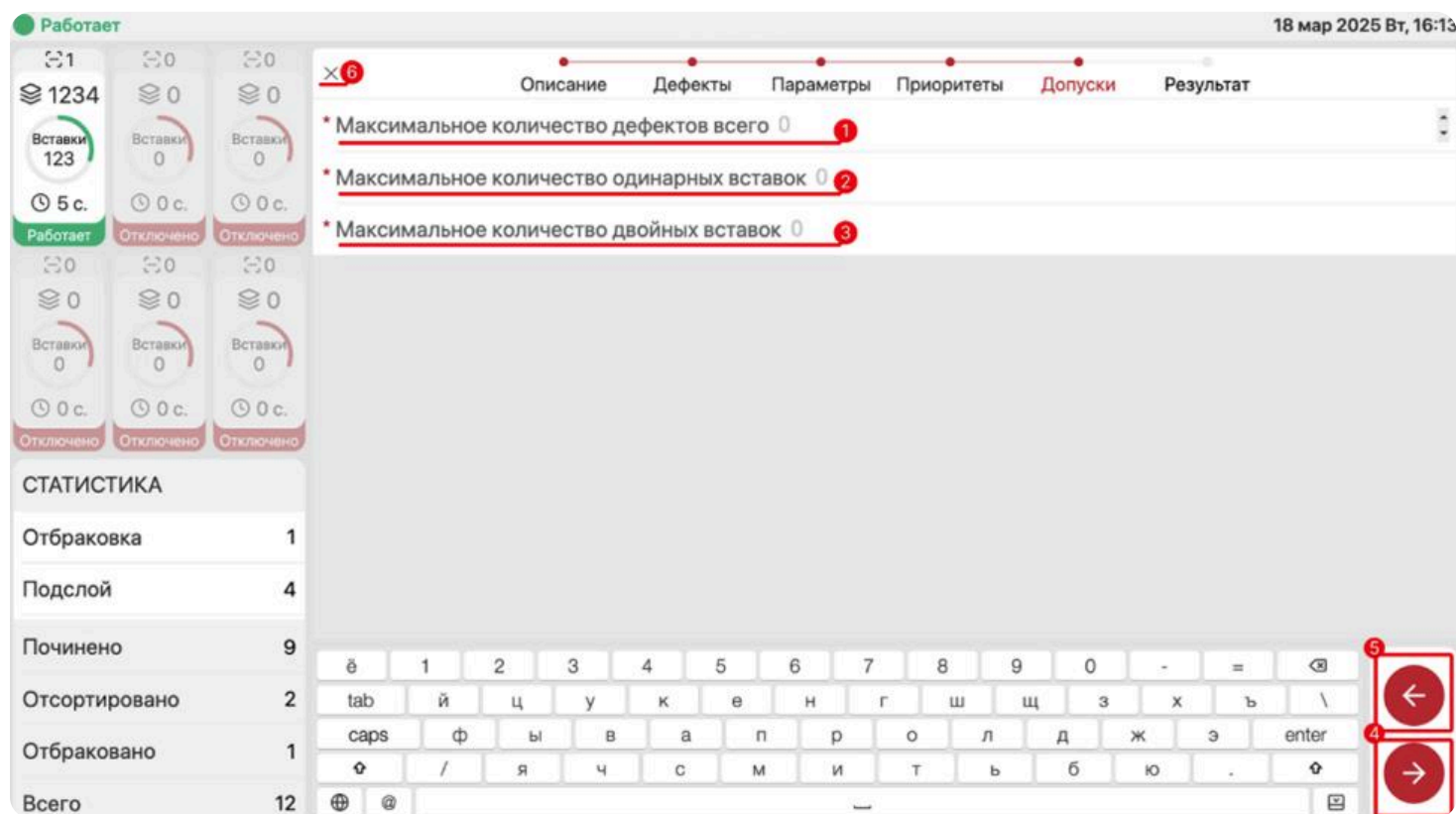
5.1.6.2. Max allowable number of single inserts (label “2”)

5.1.6.3. Max allowable number of double inserts (label “3”)

5.1.6.4. Proceed to the next step (red arrow button pointing right — label “4”)

5.1.6.5. Return to the previous step (red arrow button pointing left — label “5”)

5.1.6.6. To cancel, press the cross icon (label “6”)



5.1.7. Result

5.1.7.1. Verify that all fields are correctly filled

5.1.7.2. Save the new product by clicking the Save button (red diskette icon – label “1”)

5.1.7.3. If corrections are needed, go back (red arrow pointing left – label “2”)

5.1.7.4. To cancel, press the cross icon (label “3”)

Работает 18 мар 2025 Вт, 16:1

1234 Вставки 123 5 с. Работает 0 0 с. Отключено 0 0 с. Отключено 0 0 с. Отключено

СТАТИСТИКА

Отбраковка	1
Подслой	4
Починено	9
Отсортировано	2
Отбраковано	1
Всего	12

Описание Дефекты Параметры Приоритеты Допуски Результат

Описание

Название	Сорт
Ширина (мм)	1200
Длина (мм)	2400

Допуски

Максимальное количество дефектов	50
Максимальное количество одинарных вставок	30
Максимальное количество двойных вставок	10

Дефекты

Сучок (выпавший с радиальными трещинами, загнивающий)	
Допустимое количество	10
Починка	✓
Мин. ширина (мм)	10

Панель Продукты Рецепты Отчеты ИНП 5

Михайлов Администратор

2 1

←

💾

5.2. Editing a Product

5.2.1. Select a product from the list (label “1”)

5.2.2. Open the menu (“...”) (label “2”)

5.2.3. Click Edit

5.2.4. Continue through the product creation flow with pre-filled data (see 5.1.2)

The screenshot displays the Syntetra software interface. On the left, a sidebar contains a 'СТАТИСТИКА' (Statistics) section with a table showing counts for various stages: Отбраковка (1), Подслой (4), Починено (9), Отсортировано (2), Отбраковано (1), and Всего (12). The main area shows a list of products with columns for 'Поиск' (Search) and 'Сорт' (Sort). A red box labeled '1' highlights the 'Сорт' menu item in the sidebar. Another red box labeled '2' highlights the 'Редактировать' (Edit) button in the top right corner of the product details panel. The product details panel shows fields for 'Описание' (Description), 'Название' (Name), 'Ширина (мм)' (Width (mm)), 'Длина (мм)' (Length (mm)), 'Допуски' (Tolerances), and 'Дефекты' (Defects). The 'Дефекты' section lists 'Сучок (выпавший с радиальными трещинами, загнивающий)' (Knot (fallen with radial cracks, rotting)) and 'Допустимое количество' (Allowable quantity) of 10. The bottom bar shows navigation icons for 'Панель', 'Продукты', 'Рецепты', 'Отчеты', and 'ИНП', along with a user profile for 'Михайлов Администратор' and a red '+' button.

Статистика	Количество
Отбраковка	1
Подслой	4
Починено	9
Отсортировано	2
Отбраковано	1
Всего	12

Сорт	Описание	Название	Ширина (мм)	Длина (мм)	Допуски	Дефекты
Сорт II						
Сорт III						
Ламинирование						
Подслой						
Сорт						

Допуски	Максимальное количество дефектов	Максимальное количество двойных вставок	Максимальное количество одинарных вставок
	50	10	30

Дефекты	Допустимое количество	Починка	Мин. ширина (мм)
Сучок (выпавший с радиальными трещинами, загнивающий)	10	✓	10

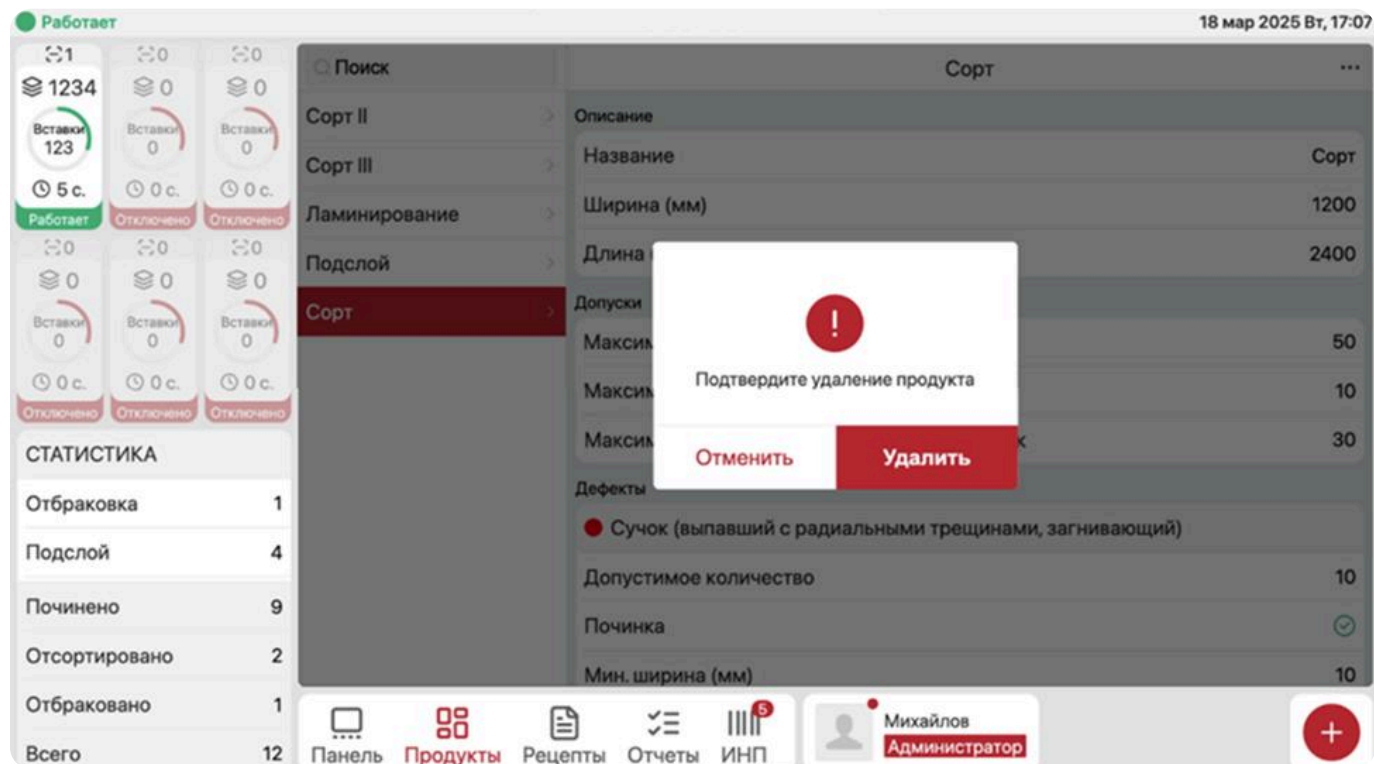
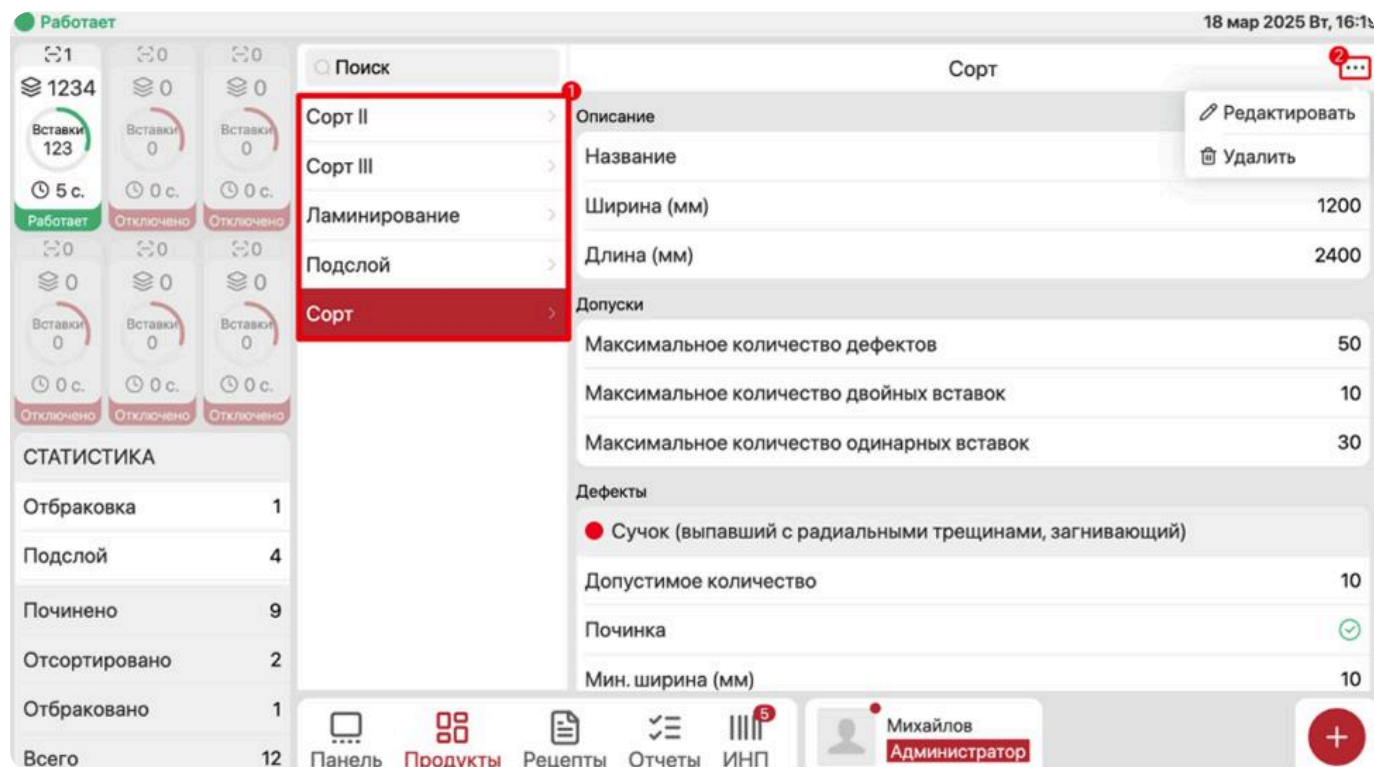
5.3. Deleting a Product

5.3.1. Select a product from the list (label “1”)

5.3.2. Open the menu (“...”) (label “2”)

5.3.3. Click Delete

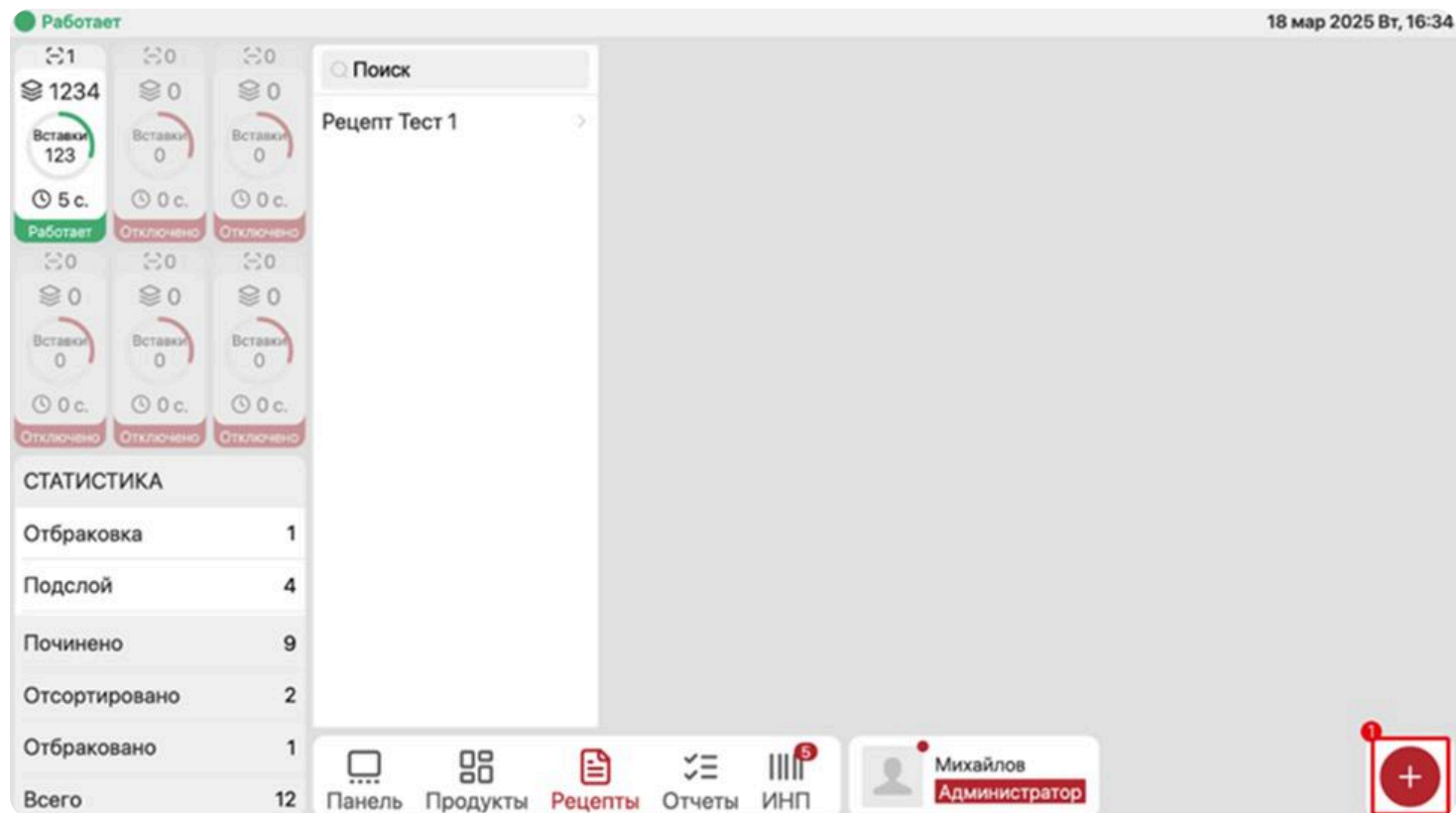
5.3.4. Confirm the action



6. Recipes

6.1. Creating a Recipe

6.1.1. Press the red “+” button in the bottom right corner of the screen (label “1”).



6.1.2. Fill in the recipe description

6.1.2.1. Enter the recipe name (label “1”)

6.1.2.2. Enter a short description for the operator (label “2”)

6.1.2.3. Proceed to the next step (red arrow button pointing right — label “3”)

6.1.2.4. To cancel, press the cross icon (label “4”)

18 мар 2025 Вт, 16:34

Работает

1234

Вставка 123

5 с.

Работает

Вставка 0

0 с.

Отключено

Вставка 0

0 с.

Отключено

Вставка 0

0 с.

Отключено

Вставка 0

0 с.

Отключено

Вставка 0

0 с.

Отключено

СТАТИСТИКА

Отбраковка	1
Подслой	4
Починено	9
Отсортировано	2
Отбраковано	1
Всего	12

Описание

Продукты

Приоритеты

Результат

* Название рецепта Введите название 1

* Краткое описание Введите описание 2

3

4

→

6.1.3. Products

6.1.3.1. Select products to associate with the recipe (label “1”)

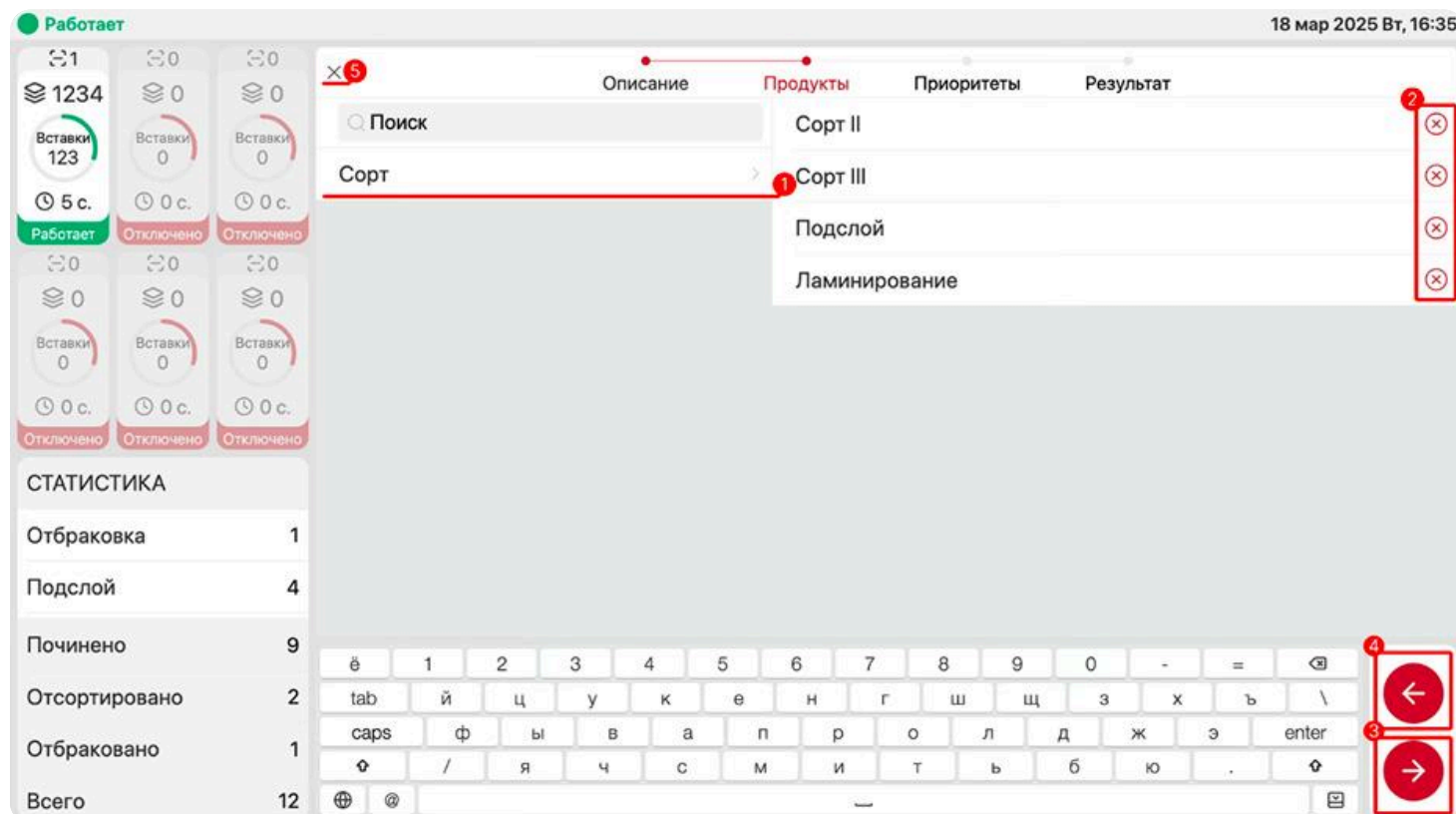
(Note: the system will only verify incoming veneer sheets against the selected products at this stage)

6.1.3.2. You can remove mistakenly selected products using the red cross (label “2”)

6.1.3.3. Proceed to the next step (red arrow button pointing right — label “3”)

6.1.3.4. Return to the previous step (red arrow button pointing left — label “4”)

6.1.3.5. To cancel, press the cross icon (label “5”)



6.1.4. Priorities

6.1.4.1. Select from the list the products the system will attempt to match the sheet to during repair (label “1”)

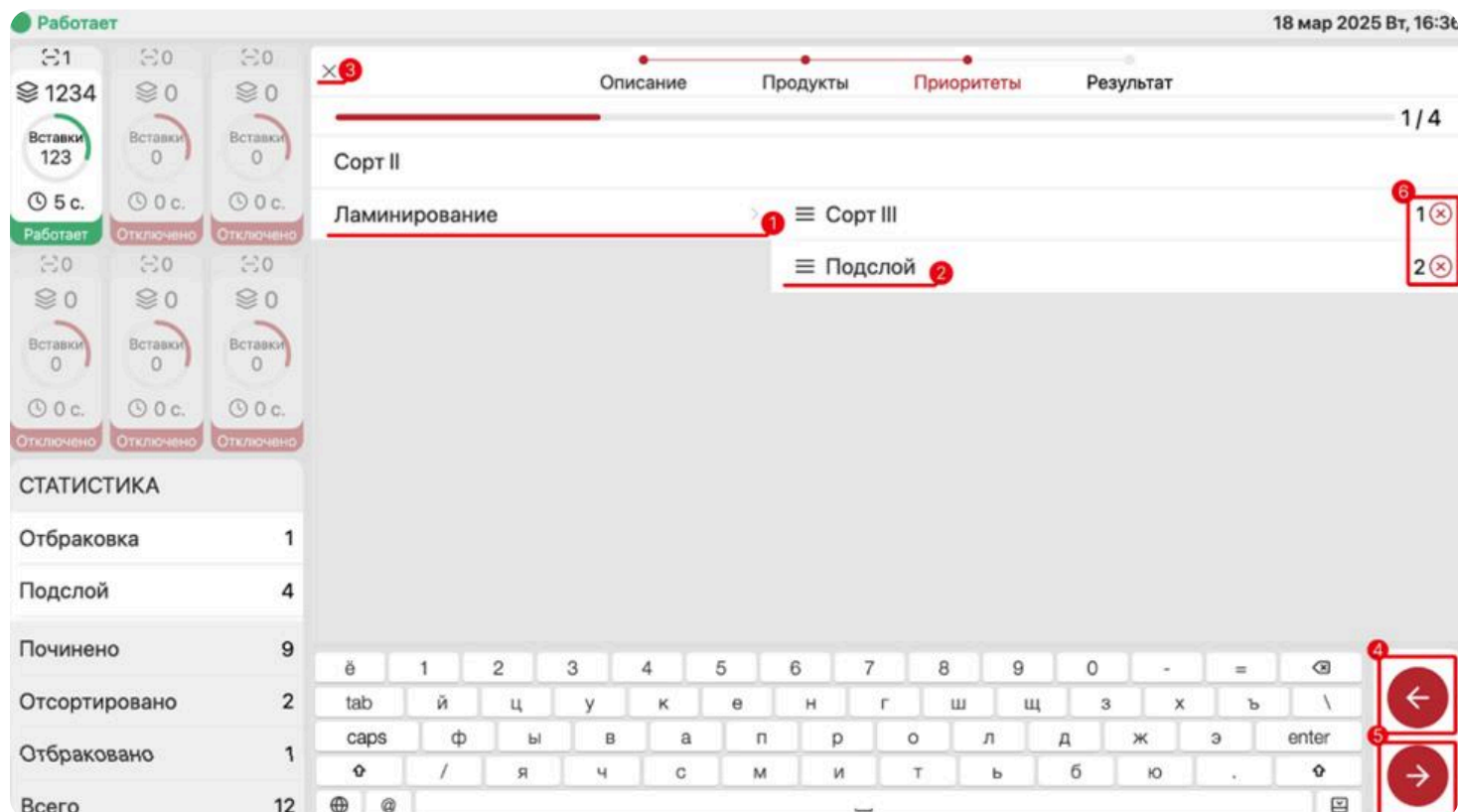
6.1.4.2. Drag and drop to set priority for the target product list (label “2”)

6.1.4.3. You can remove mistakenly selected products using the red cross (label “6”)

6.1.4.4. Proceed to the next step (red arrow button pointing right — label “5”)

6.1.4.5. Return to the previous step (red arrow button pointing left — label “4”)

6.1.4.6. To cancel, press the cross icon (label “3”)



6.1.5. Result

6.1.5.1. Verify that all fields are filled correctly

6.1.5.2. Save the new recipe by clicking the Save button (red diskette icon – label “1”)

6.1.5.3. If corrections are needed, go back (red arrow pointing left – label “2”)

6.1.5.4. To cancel, press the cross icon (label “3”)

Работает 18 мар 2025 Вт, 16:36

Описание Продукты Приоритеты Результат

Описание

Название

Описание

Сорт II

Сорт III 1

Подслой 2

Сорт III

Подслой

Ламинирование 1

Ламинирование

СТАТИСТИКА

Отбраковка	1
Подслой	4
Починено	9
Отсортировано	2
Отбраковано	1
Всего	12

1 2

←

1 2

1 2

6.2. Editing a Recipe

6.2.1. Select a recipe from the list (label “1”)

6.2.2. Open the menu (“...”) (label “2”)

6.2.3. Click Edit

6.2.4. You’ll be redirected to the recipe creation flow with pre-filled data (see 6.1.2)

The screenshot displays the Syntetra software interface. At the top, a status bar shows 'Работает' (Working) and the date '19 мар 2025 Ср, 12:08'. The left sidebar contains a dashboard with three status indicators: 'Вставки 123' (Working, 5s), 'Вставки 0' (Disconnected, 0s), and 'Вставки 0' (Disconnected, 0s). Below this is a 'СТАТИСТИКА' (Statistics) table:

Category	Count
Отбраковка	1
Подслой	4
Починено	9
Отсортировано	2
Отбраковано	1
Всего	12

The main content area features a search bar labeled 'Поиск' and a list of recipe components for 'Рецепт Тест 1'. The components are:

- Описание
- Название
- Описание рецепта
- Сорт II
- Сорт III (1)
- Ламинирование (2)
- Подслой (3)
- Сорт III
- Сорт II (1)
- Ламинирование (2)
- Ламинирование
- Подслой (1)

On the right side of the recipe list, there are two buttons: 'Редактировать' (Edit) and 'Удалить' (Delete). The bottom navigation bar includes icons for 'Панель', 'Продукты', 'Рецепты' (highlighted), 'Отчеты', and 'ИНП'. A user profile card for 'Михайлов Администратор' is also visible.

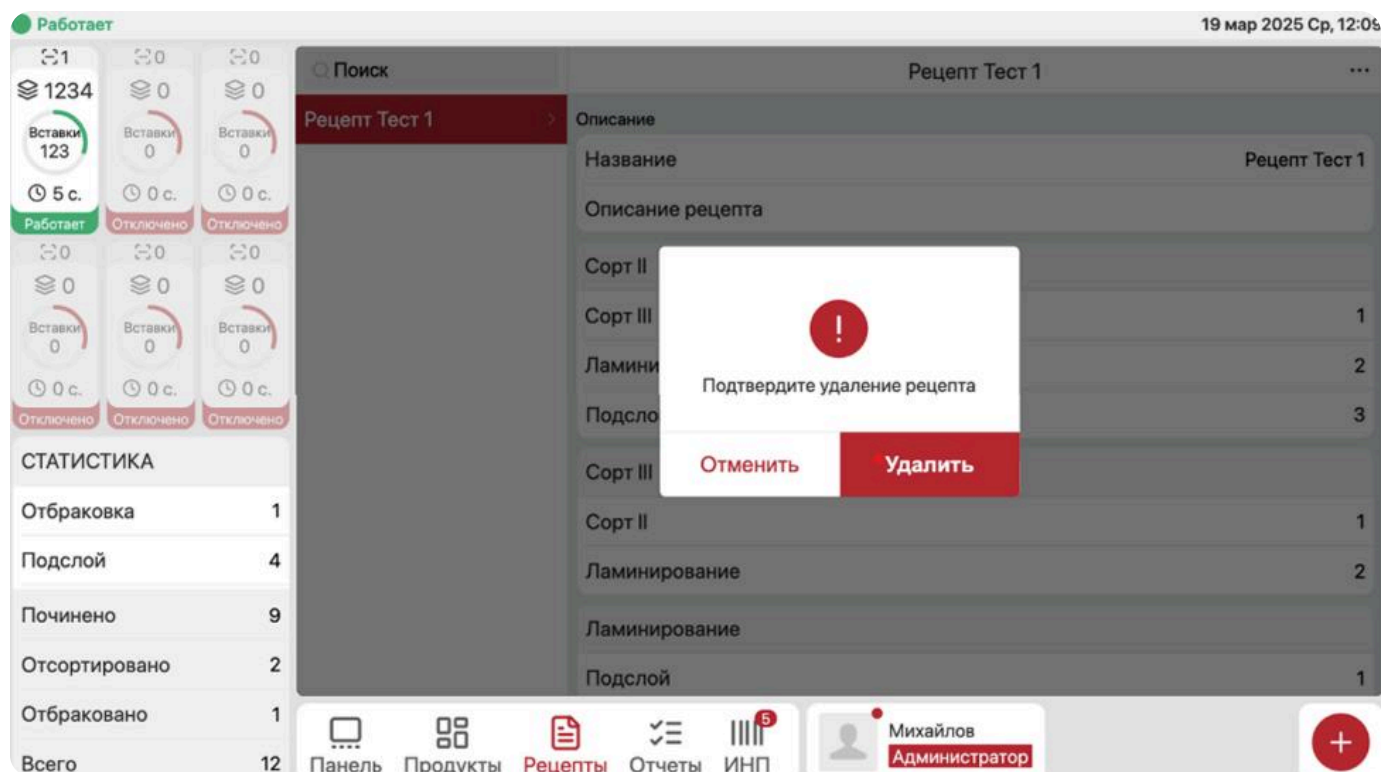
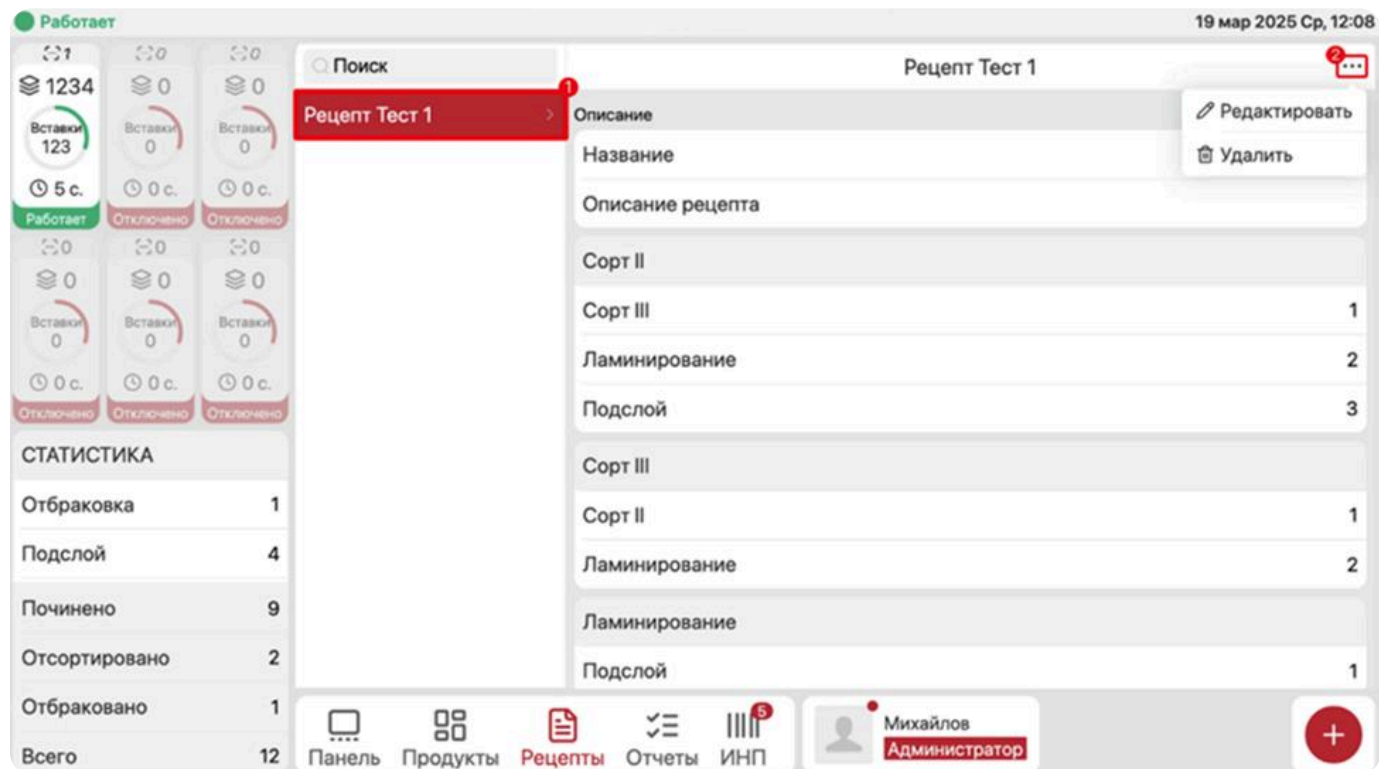
6.3. Deleting a Recipe

6.3.1. Select a recipe from the list (label “1”)

6.3.2. Open the menu (“...”) (label “2”)

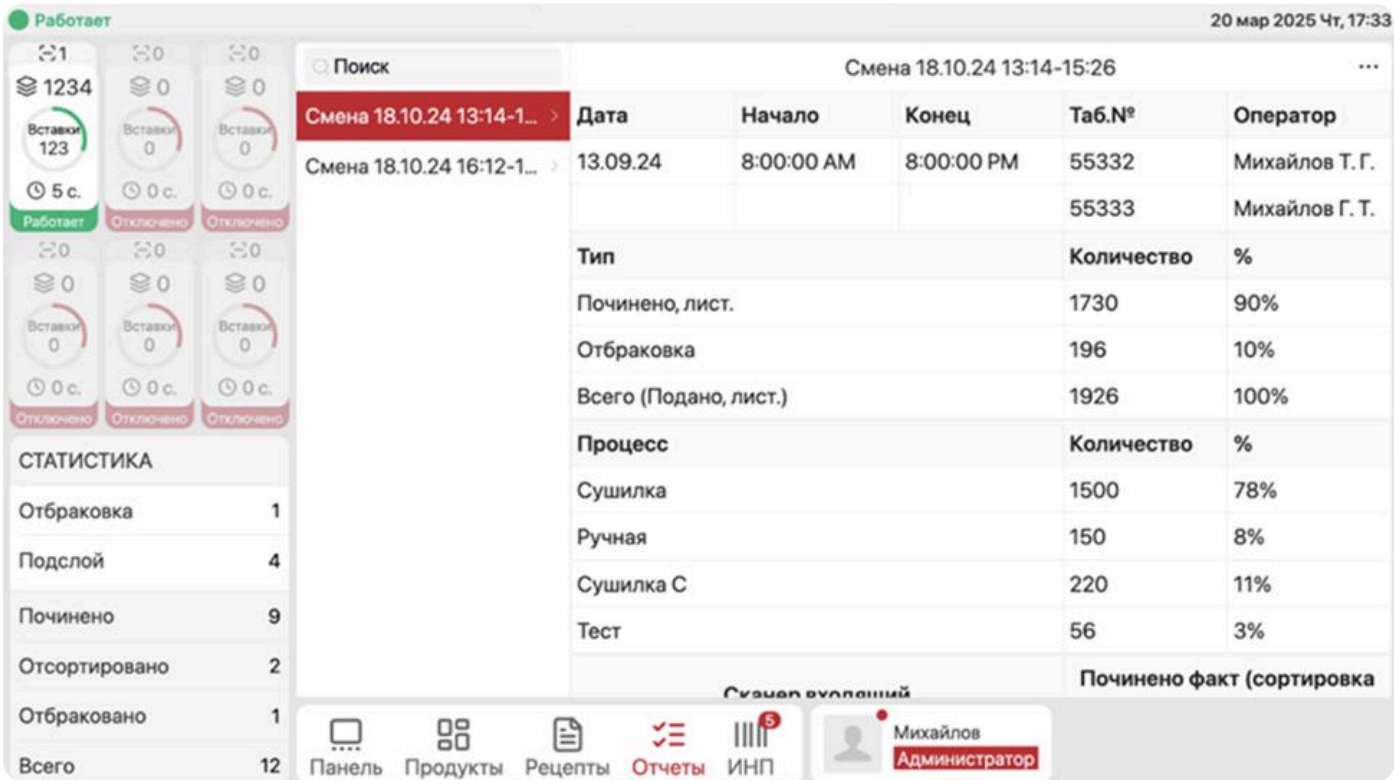
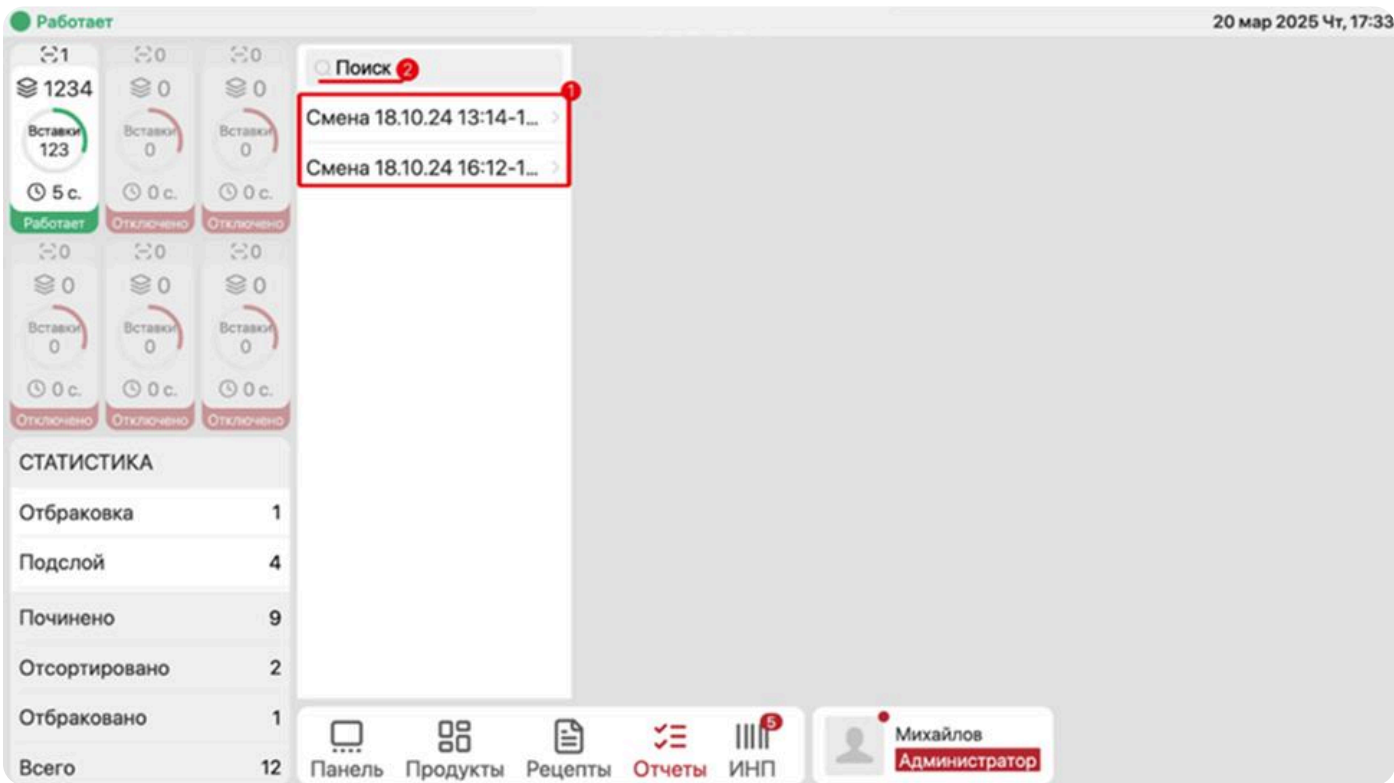
6.3.3. Click Delete

6.3.4. Confirm the action



7. Reports

- 7.1. Select a shift from the list on the left side of the screen to view the corresponding report (label “1”)
- 7.2. For quick search, use the Search field (label “2”)



8. INP

8.1. Adding a New INP

8.1.2. Fill in the following fields: “Sheets”, “Day”, “Hour”, “Minute” (labels “1-4”)

8.1.3. Select the following “Process”, “Certificate”, “Additional Attribute” (labels “5-7”)

8.1.4. Click the Add INP button (label “8”)

Работает

18 мар 2025 Вт, 16:36

1234

Вставки 123

0 5 с.

Работает

0

Вставки 0

0 0 с.

Отключено

0

Вставки 0

0 0 с.

Отключено

0

Вставки 0

0 0 с.

Отключено

0

Вставки 0

0 0 с.

Отключено

0

Вставки 0

0 0 с.

Отключено

СТАТИСТИКА

Отбраковка1

Подслой4

Починено9

Отсортировано2

Отбраковано1

Всего12

Список INП

555.25.24.54.111.0.1

1

* Листы

300

1

556.25.25.54.111.0.1

2

* День

31

2

557.25.26.54.111.0.1

3

* Час

15

3

558.25.27.54.111.0.1

4

* Минута

59

4

559.25.28.54.111.0.1

5

* Процесс

процесс 1

процесс 2

процесс 3

5

* Сертификат

0

1

6

* Доп. признак

признак 1

признак 2

признак 3

7

листы.день.час.минута.процесс.сертификат.признак

Добавить INП

8

ё1234567890-_=

tabйцукенгшщзхъ\

capsфывапапролджэenter

ф/ячсмитьбю.ф

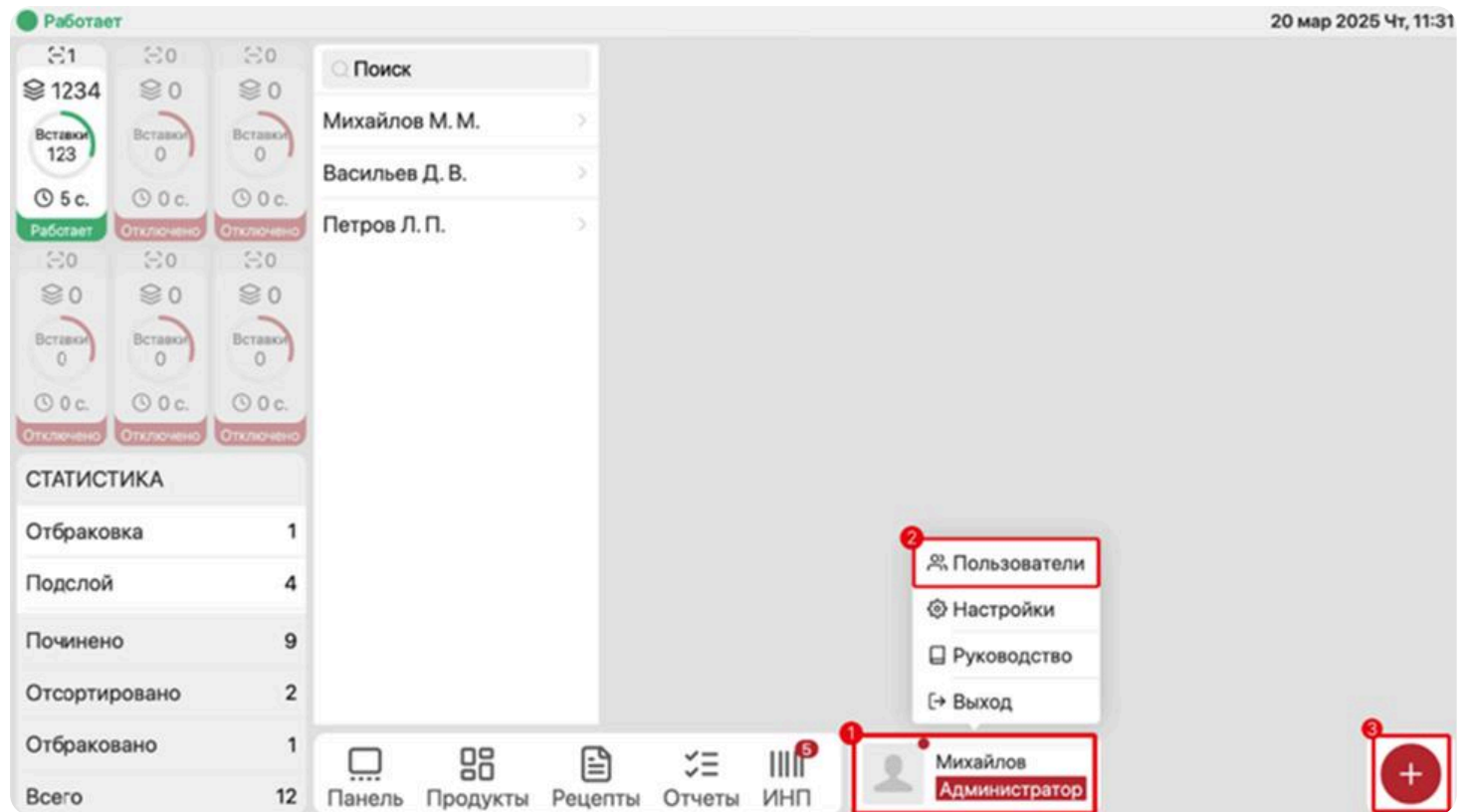
9. Users

9.1. Creating a User

9.1.1. Click on the block showing the user's surname and role (label “1”)

9.1.2. Select Users from the menu (label “2”)

9.1.3. Press the red “+” button (label “3”)



9.1.4. Fill in user information

9.1.4.1. Enter the following fields “First Name”, “Last Name”, “Middle Name”, “Employee ID” (labels “4-7”)

9.1.4.2. Set a unique 6-digit password (label “8”)

9.1.4.3. Select the user’s role (label “9”)

9.1.4.4. Proceed to the next step (red arrow pointing right – label “10”)

9.1.4.5. To cancel, press the cross icon (label “11”)

Работает 18 мар 2025 Вт, 16:37

Пользователь Результат

* Имя Введите имя 4

* Фамилия Введите фамилию 5

* Отчество Введите отчество 6

* Табельный номер Введите табельный номер 7

* Пароль (код) Введите код 8

* Роль ☐ Администратор 9
☐ Технолог
☒ Оператор

СТАТИСТИКА

Отбраковка	1
Подслой	4
Починено	9
Отсортировано	2
Отбраковано	1
Всего	12

10

11

9.1.5. Result

9.1.5.1. Verify that all fields are filled correctly

9.1.5.2. Save the new user by clicking Save (red diskette icon — label “1”)

9.1.5.3. To edit something, return to the previous step (red arrow pointing left — label “2”)

9.1.5.4. To cancel, press the cross icon (label “3”)

The screenshot displays the Synetra software interface. At the top, a status bar shows "Работает" (Working) with a green dot and the date "18 мар 2025 Вт, 16:36". Below this is a progress bar with two steps: "Пользователь" (User) and "Результат" (Result). The main area is divided into a left sidebar and a central form.

Left Sidebar:

- Top Section:** A grid of 9 circular icons. The first icon is green and labeled "Вставки 123" (Insertions 123) with a "5 с." (5 sec) timer and a "Работает" (Working) status. The other 8 icons are red and labeled "Вставки 0" (Insertions 0) with a "0 с." (0 sec) timer and an "Отключено" (Disabled) status.
- STATISTIKA (Statistics) Table:**

Статистика	Значение
Отбраковка	1
Подслой	4
Починено	9
Отсортировано	2
Отбраковано	1
Всего	12

Central Form:

The form is titled "Пользователь" (User) and contains the following fields:

- ФИО** (Full Name): Фамилия Имя Отчество
- Табельный номер** (Table Number): 123
- Роль** (Role): Оператор
- Пароль (код)** (Password (code)): 123123

Bottom Section:

A virtual keyboard is visible. To the right of the keyboard, there are two red circular icons: a left-pointing arrow (labeled "2") and a diskette icon (labeled "1"). A red "X" icon (labeled "3") is located at the top left of the form area.

9.2. Editing a User

9.2.1. Select a user from the list (label “1”)

9.2.2. Open the menu (“...”) (label “2”)

9.2.3. Click Edit

9.2.4. You’ll be redirected to the user creation form with pre-filled data (see 9.1.4)

The screenshot displays a software interface with a sidebar on the left and a main content area on the right. The sidebar contains a status indicator 'Работает' (Working) with a green dot, a search bar 'Поиск', and a list of users: 'Михайлов М. М.', 'Васильев Д. В.', and 'Петров Л. П.'. The user 'Михайлов М. М.' is highlighted with a red box and a red circle labeled '1'. Below the user list is a 'СТАТИСТИКА' (Statistics) section with a table showing counts for various actions: 'Отбраковка' (1), 'Подслой' (4), 'Починено' (9), 'Отсортировано' (2), 'Отбраковано' (1), and 'Всего' (12). The main content area shows the details for the selected user 'Михайлов М. М.'. It includes a 'Пользователь' (User) section with fields for 'ФИО' (Mikhailov M. M.), 'Табельный номер' (3333), 'Роль' (Администратор), and 'Пароль (код)' (000000). A red box and a red circle labeled '2' highlight the 'Редактировать' (Edit) button in the top right corner of the user details form. The bottom of the interface features a navigation bar with icons for 'Панель', 'Продукты', 'Рецепты', 'Отчеты', and 'ИНП', along with a user profile card for 'Михайлов Администратор' and a red plus button.

Статистика	Значение
Отбраковка	1
Подслой	4
Починено	9
Отсортировано	2
Отбраковано	1
Всего	12

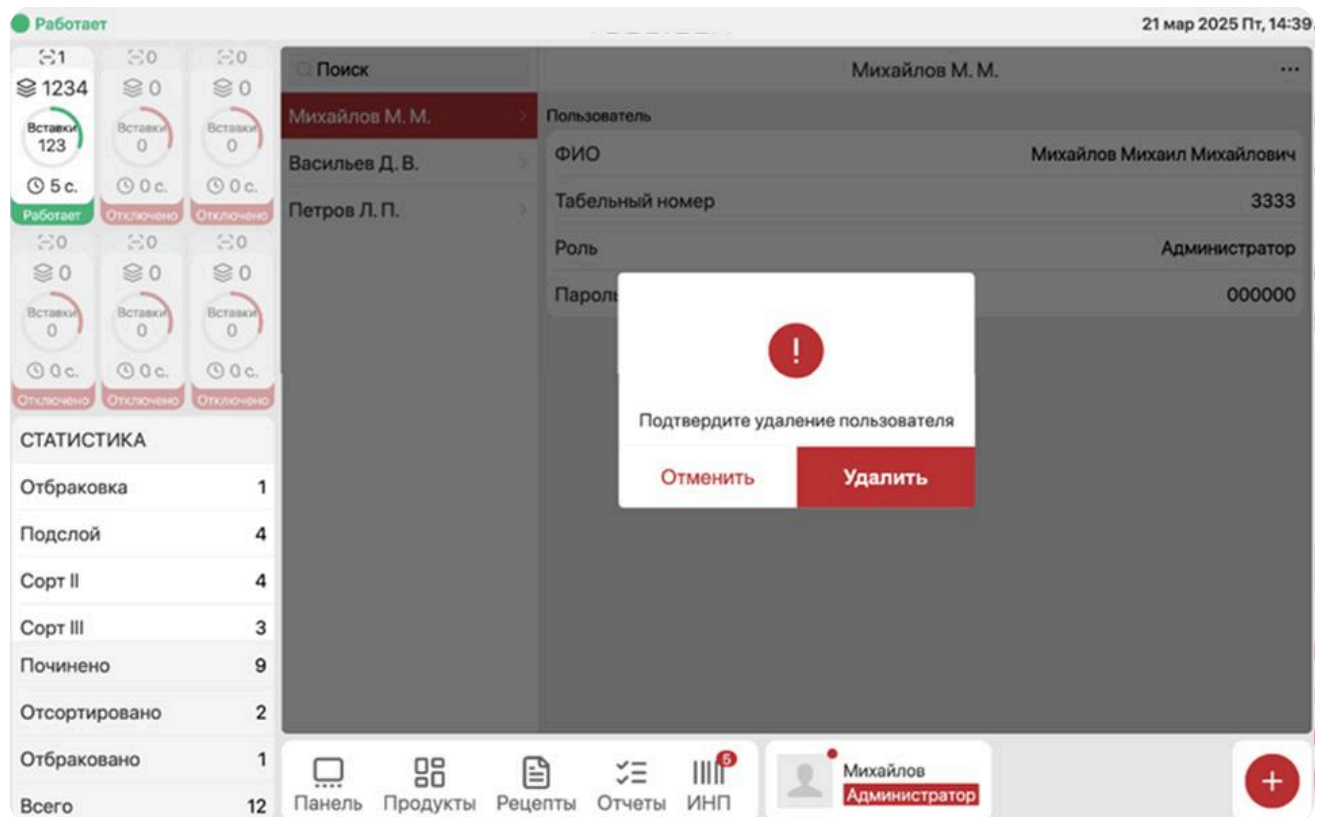
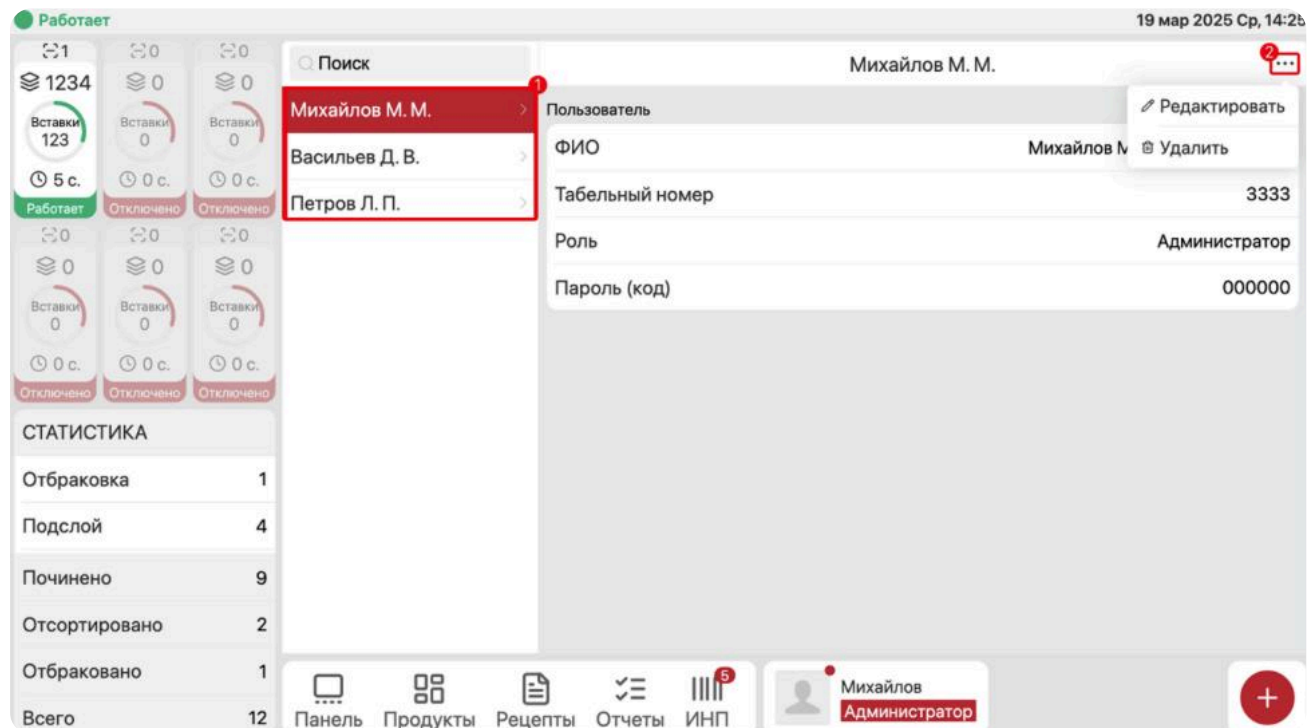
9.3. Deleting a User

9.3.1. Select a user from the list (label “1”)

9.3.2. Open the menu (“...”) (label “2”)

9.3.3. Click Delete

9.3.4. Confirm the action



9.4. User Roles and Permissions

9.4.1. Operator

9.4.1.1. Select recipes

9.4.1.2. Start/stop the system

9.4.1.3. View statistics, help, reports, recipes, and products

9.4.2. Technologist

9.4.2.1 All Operator permissions

9.4.2.2. Create, edit, and delete recipes and products

9.4.2.3. Change system settings

9.4.3. Administrator

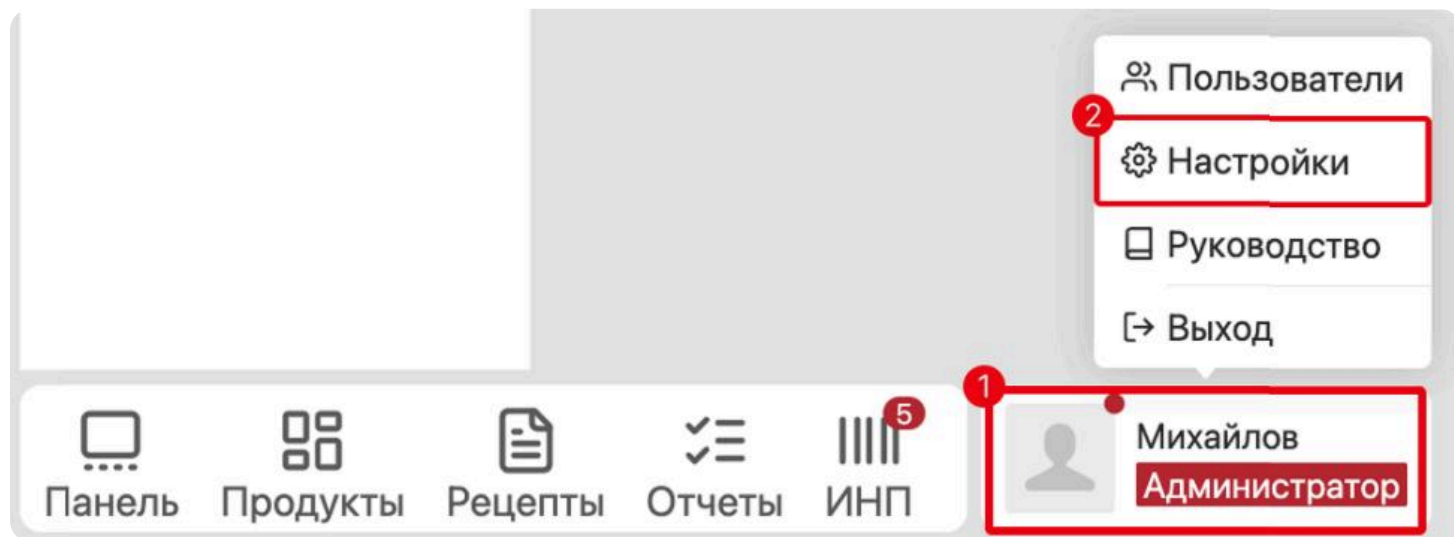
9.4.3.1. All Technologist permissions

9.4.3.2. Manage user accounts

10. Settings

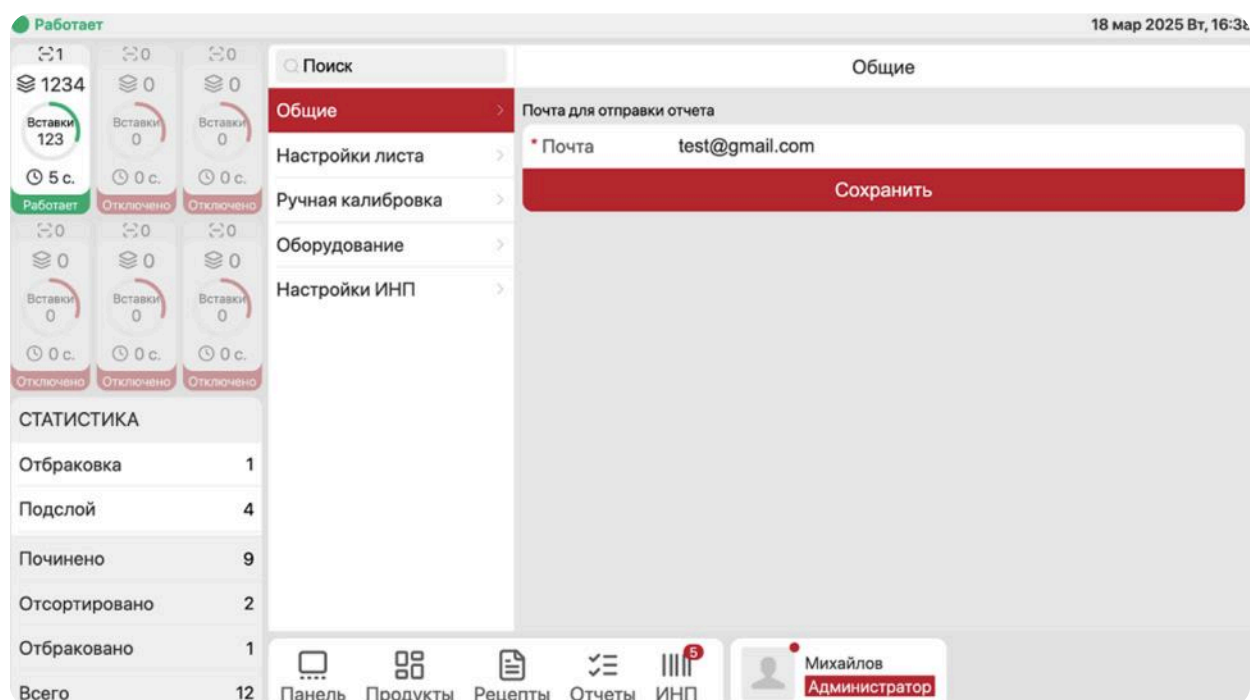
10.1. Click on the block displaying the user's surname and role (label “1”)

10.2. Select Settings from the menu (label “2”)



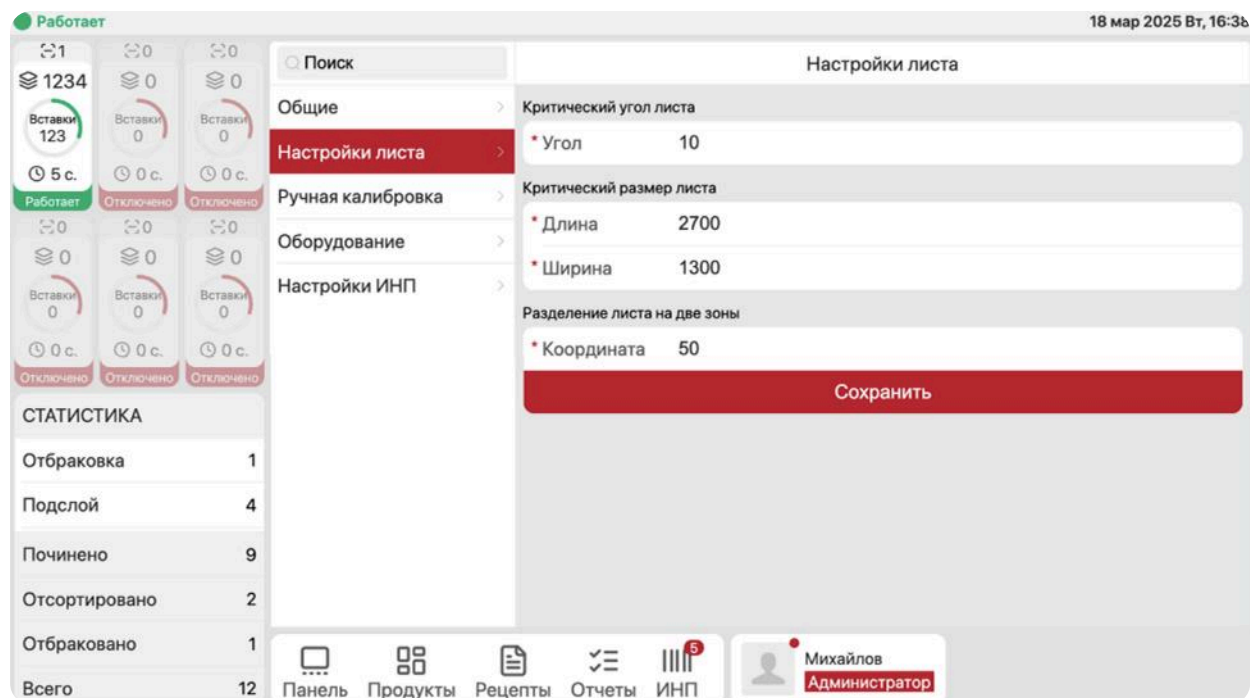
10.3. General Settings

10.3.1. Change the email address used to send shift reports



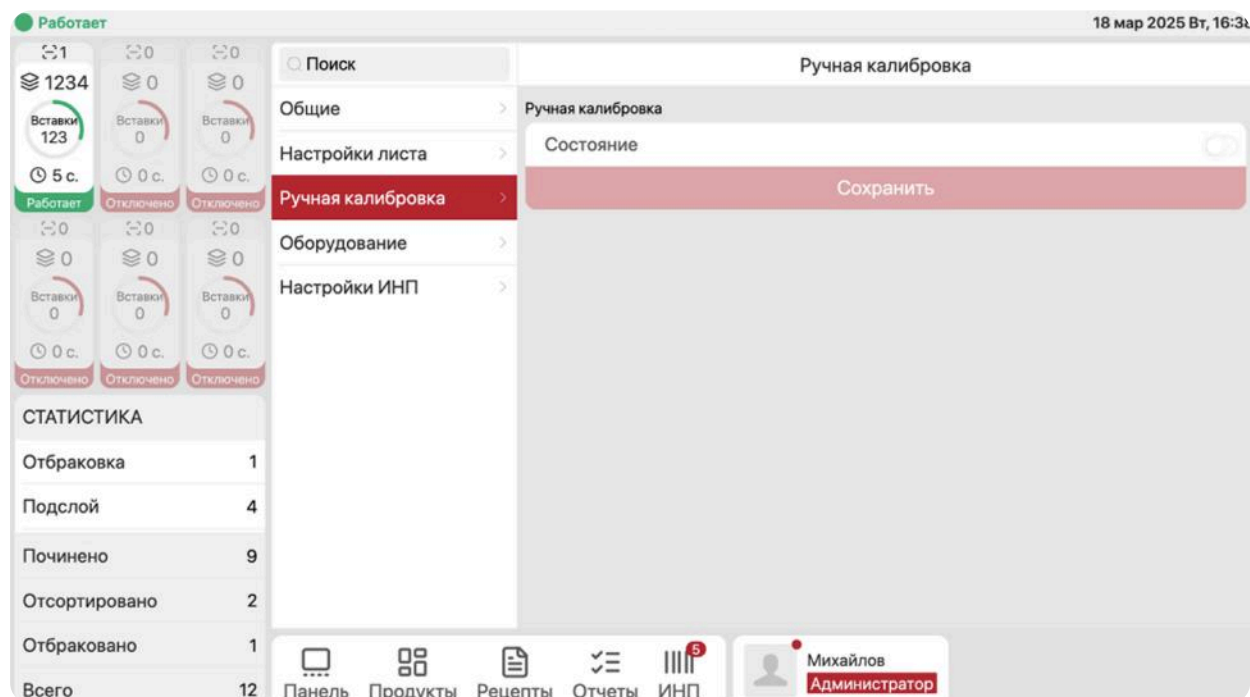
10.4. Sheet Settings

10.4.1. Set the critical angle (in degrees), sheet dimensions (length/width in mm), and zone partitioning



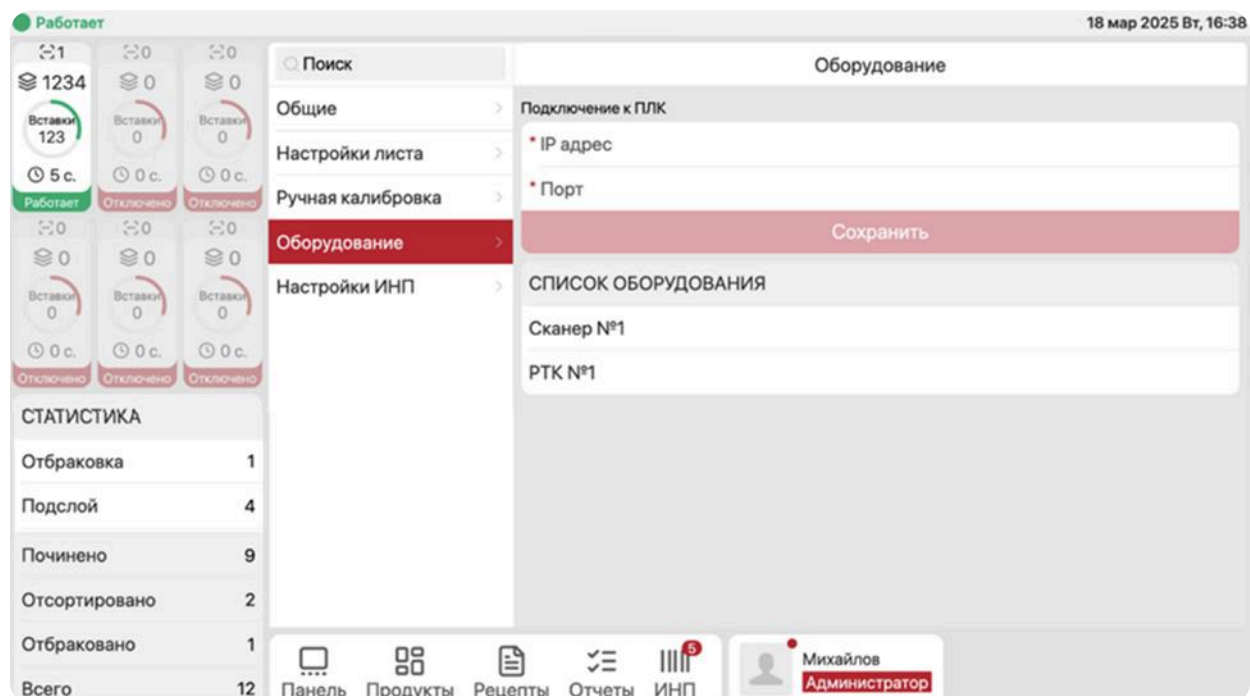
10.5. Manual Calibration

10.5.1. Perform equipment calibration manually



10.6. Equipment

10.6.1. Change the PLC's IP address and port, configure the equipment list



10.7. INP Settings

10.7.1. Adding a New Process

10.7.1.1. Press the Add button

10.7.1.2. Fill in the “Name” and “Value” fields and press Save

The screenshot shows the 'Настройки ИМП' (INP Settings) interface. The left sidebar contains status indicators for various components (e.g., 'Вставки 123', '5 с.', 'Работает', 'Отключено'). The main area displays the 'Процесс' (Process) tab, which lists existing processes: 'процесс 1' (101), 'процесс 2' (102), and 'процесс 3' (103). A red 'Добавить' (Add) button is visible at the bottom of the list. The bottom navigation bar includes icons for 'Панель', 'Продукты', 'Рецепты', 'Отчеты', and 'ИМП', along with a user profile for 'Михайлов Администратор'.

10.7.2. Adding an Additional Attribute

10.7.2.1. Press the Add button

10.7.2.2. Fill in the “Name” and “Value” fields and press Save

The screenshot shows the 'Настройки ИМП' (INP Settings) interface, specifically the 'Доп. признак' (Additional Attribute) tab. The left sidebar is identical to the previous screenshot. The main area displays a list of attributes: 'признак 1' (1), 'признак 2' (2), and 'признак 3' (3). A red 'Добавить' (Add) button is visible at the bottom of the list. The bottom navigation bar and user profile remain the same.